

AMERICAN ARTISAN

DECEMBER 1953

Warm Air Heating
Residential Air Conditioning
Sheet Metal Contracting

FEATURES THIS MONTH

• **AN AIR** distribution system is laid out for a two story home, with the help of NWAHACA Manuals 7 and 11 page 54

• **GOOD SELLING** techniques anticipate the prospect's questions about the product page 62

• **SHEET METAL** shops can fabricate many garment hanging fixtures for dry cleaners page 68

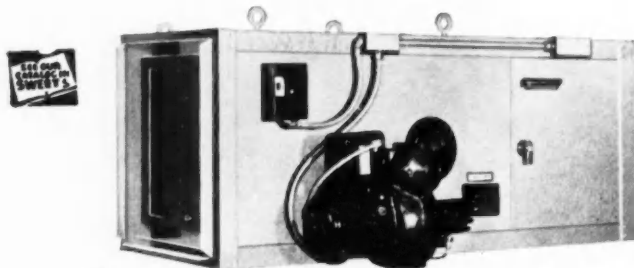
• **COVER PICTURE** — This laboratory at the University of Illinois, built to test heated floor slabs, is another step in the development of forced warm air heating page 50

Complete Contents p. 4



Check!

**THE FAMOUS J-C QUALITY, DESIGN,
SPACE SAVING DIMENSIONS and . . . PRICE!**



JACKSON & CHURCH SUSPENDED WARM AIR FURNACES for small commercial and residential installations of 80,000, 100,000, 110,000 BTU output.

The same space-saving convenience . . . the same dependable heating . . . the same operating economy . . . now available in a range of smaller sizes for homes, shops and smaller commercial installations.

All J-C SUSPENDED UNITS can be located overhead or in out-of-the-way places. Larger units are available in 112,000, 122,000, 145,000, 224,000, 280,000, 392,000, 450,000, 800,000, and 1,000,000 BTU output. Units are UL approved.

Floor models with outputs of 50,000 to 3,800,000 BTU are included in the J-C line. For additional information, see your local J-C supplier or write our Engineering Department.

♦♦♦ America's Largest and Most Complete Warm Air Heating Line ♦♦♦



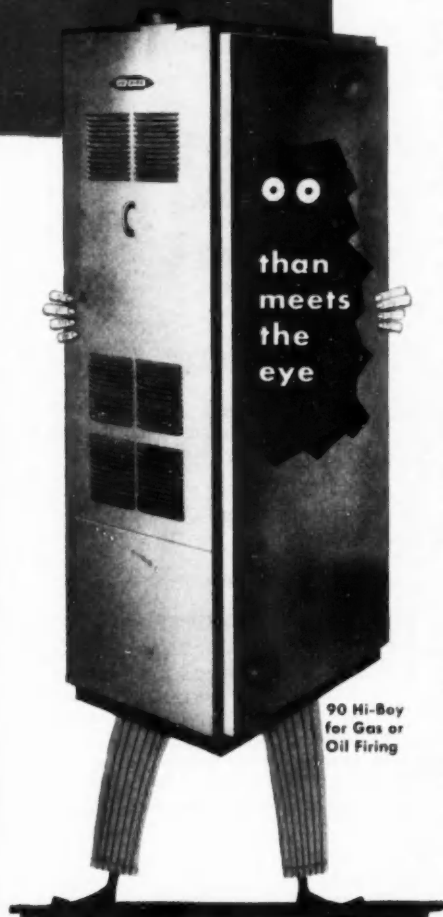
J-C

JACKSON & CHURCH CO.

SAGINAW, MICHIGAN

Work well done since eighty-one

Lots more to
KO-Z-AIRE



PLENTY OF OTHER MODELS, TOO!



COUNTERFLOWS
and HI-BOYS



CONVERSION
OIL BURNER



LO-BOY
MODELS

Counterflow
and Hi-Boy Models — Oil
79,700 — 105,000 BTU Output

Counterflow
and Hi-Boy Models — Gas
70,000 — 125,000 BTU Input

Gas Conversion Burner
70,000 — 300,000 BTU Input

Lo-Boy Models — Gas
90,000 — 140,000 BTU Input

Lo-Boy Models — Oil
85,400 — 123,000 BTU Output

Larger models to 420,000 BTU

Oil Conversion Burner
0.75 — 12 gallons per hour

for gas or oil

ONE glance at the furnaces pictured here tells you that KO-Z-AIRE's got what it takes in styling and good looks.

But the fellow who said a picture speaks louder than words wasn't talking about these skillfully engineered KO-Z-AIRE units. For it would take a book to describe in full all the many reasons why you profit more with the KO-Z-AIRE line.

As proof, there's KO-Z-AIRE's one-piece, gas-tight welded steel heat exchanger, that's designed for efficient heat transfer.

There's the feature of the integrally designed channel mounted base of KO-Z-AIRE units — which increases sturdiness — eliminates any need for special "grouting" and keeps cabinets dust-tight, leak-proof.

There's the fact that most KO-Z-AIRE furnaces are assembled and wired at the factory — to help speed installation, make it easier for you.

Then there's the all-important "Zero Clearance" approvals that KO-Z-AIRE Hi-Boys and Counterflows have — which cuts costs for you since it means they can be installed in alcoves, utility rooms or closets.

Or there's the competitive edge you have with KO-Z-AIRE — as all Hi-Boys, and most other models, can be converted from one fuel to another at any time — so you can keep sales up despite restrictions.

We could go on and on. Dependable, quiet, economical performance . . . Automatic operation . . . Over 30 gas and oil-fired models, ranging from 70,000 to 420,000 BTU input — and all priced right for the job.

You can get a complete, unabridged description of this part of the big KO-Z-AIRE story by simply mailing the coupon below. But the happy ending — customer satisfaction, fewer call-backs, bigger profits — is one thing we can't describe in words. You have to experience that yourself.

KO-Z-AIRE
PRODUCTS, INC. ©

RED OAK, IOWA

Representatives in Principal Cities



KO-Z-AIRE PRODUCTS, Inc.

Dept. AA-12

Red Oak, Iowa

Please send us details on the KO-Z-AIRE Hi-Boy Winter Air Conditioners — plus information on the complete KO-Z-AIRE line.

NAME _____ TITLE _____

FIRM _____

CITY _____ STATE _____

Call today

AMERICAN ARTISAN

DECEMBER 1953

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Founded 1864

Volume 90 No. 12

WARM AIR HEATING

RESIDENTIAL AIR CONDITIONING

SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

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Rx

Prescription

*For that headache caused by
small nozzle winter service...*

Syncromatic

LO-FLO

A MEDIUM PRESSURE BURNER WITH HIGH
PRESSURE FIRING EASE AND LOW PRESSURE
ECONOMY.

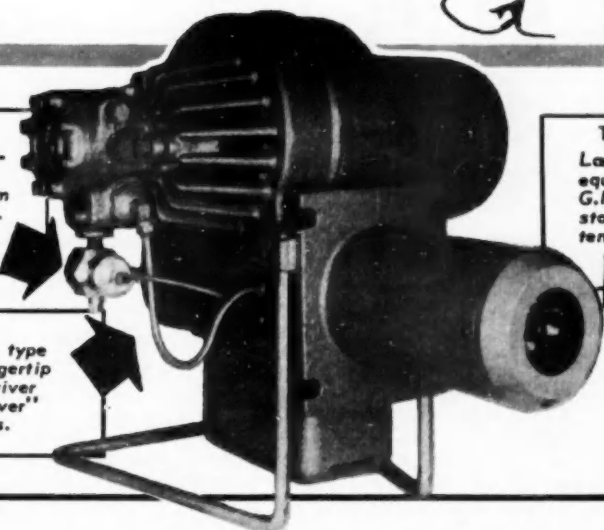


SIMPLICITY

Simple valve adjustment for complete range of inputs from 1/2 Gal. to 1 G.P.H. with one nozzle.

CONTROL

Locking micrometer type air adjustment. Fingertip control. No screwdriver or wrenches. No "over" or "under" settings.



TROUBLE FREE

Large nozzle orifice equivalent to 1.65 G.P.H. lessens nozzle stoppage. Cuts maintenance costs.

SYNCROMATIC MODEL MA "LO-FLO"

SYNCROMATIC presents LO-FLO a truly modern oil burner which has been in production and field operation for over three years. LO-FLO is built to make the firing of low gallonages a simple matter. It avoids complicated adjustments. No additional devices are necessary to vary the fuel input. The nozzle orifice

while delivering from 1/2 to 1 G.P.H., is actually a 1.65 G.P.H. orifice size. Reduces service costs greatly by cutting nozzle stoppage to a minimum. In effect, it is now possible to deliver the exact amount of fuel needed for the job and to obtain the highest operating efficiency on each installation.



A WARM AIR FURNACE FOR EVERY NEED—OIL, GAS or COAL (From 60,000 to 1,000,000 B.T.U.s.)

WRITE OR CALL

Syncromatic Corporation

WATERTOWN

WISCONSIN

the editor's notebook

Thumbing Through This Month's Artisan

... we find we'd better beware of roof leaks that aren't! Here are some hints (in L. E. Gichner's article, Many "Roof Leaks" Due to Other Causes) on how to avoid doing unnecessary and costly repair work. "Wet spots" on ceilings and walls can be due to condensation, cracks in brick walls, or other factors which aren't the result of the roofing contractor's work. Builders, architects and contractors should investigate these possibilities before ripping out parts of what may be discovered to be a perfectly good roof.

... we also find that good merchandising of evaporative coolers is like good merchandising of any other product — it's based on knowing the customer's needs and wants and knowing exactly how the product can satisfy these (see Robert Ash's article, Selling Evaporative Coolers). This last article in the series on the why's and how's of evaporative cooling ends up — appropriately enough — with a prediction as to the future in this field (which looks good!)

... we see how well a warm air perimeter system heats a floor slab (S. Konzo's article, Test Performance of Heated Floor Slab). This report tells contractors what they can do — and what they don't have to do — to produce heating comfort. (For example, it was found that any advantages of increasing duct air temperatures above 110 F were offset by the disadvantages of increased edge losses).

... we note, also, still another market for sheet metal work — small dry cleaning shops.

HERE THEY ARE... SENTRY'S TWO NEWEST ADDITIONS TO THEIR EVER-POPULAR

AT-A-GLANCE

(DIRECT AND REMOTE)

TANK GAUGES

THERMA-GAUGE



A superior quality, precision instrument with full view, solid red thermometer-type indicator

Without question, here is the easiest to read, accurate measure gauge on the market—And, the easiest to install, whether tank is empty, full or partially full. Unit features zinc base metal, two-piece die-cast assembly — Unbreakable red plastic assembly nut — Calibration chart, sealed between heavy, heat-resistant plastic domes — Brass rivets — And, a double coated cork float that's impervious to oil, many chemicals and acids. No gears, magnets, cams or tapes. Guaranteed to withstand in excess of 70 lbs. pressure per sq. inch. Tailor-made to fit individual tanks up to 12 ft. deep. Calibrated and factory adjusted.

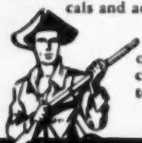
QUICKLY, SIMPLY INSTALLED. Illus. at left shows how entire calibration and float assembly may be inserted and positioned after two piece die-cast tank plug has easily been installed in tank — only an ordinary wrench is needed.



SENTR-ECON

A new, durable, low cost instrument for economy installations.

Exceptionally high quality for such a competitively priced gauge. Features patented double dome with calibrations positioned between inner tube and outer heat-resistant plastic shell. Also, die-cast tank fitting — plated metals — brass rivets. No gears, magnets, cams or intricate mechanisms. Double coated cork float is impervious to oils, most chemicals and acids. Simple to install, even in partially-filled tanks. 1 1/2" openings only. Factory calibrated and adjusted to insure accuracy.



KRUEGER SENTRY GAUGES
GREEN BAY • WISCONSIN



Write for complete details — literature

the editor's notebook

(continued)

They'll be requiring more and more fixtures such as the one described (in Ernest Zideck's article, Dry Cleaning Shops Need Sheet Metal Fixtures) to accommodate a large number of hanging garments and at the same time conserve valuable floor space.

... we get some help on designing duct systems (in S. W. Reid's article, How to Design a Duct System for a Two Story Home) the scientific way — the easiest in the long run — using NWAH-ACA's Manuals 7 and 11. Step by step, we use the manuals in locating the registers, grilles and risers, roughing in the duct system, and finishing up the job.

... and, of course, these are but a few of the articles and regular features which represent Artisan's coverage of warm air heating, residential air conditioning and sheet metal work — this month and every month.

Predicts Boom in Air Cleaner Sales

"THE NEXT five years will see a boom in the sale of electronic air cleaners," according to John D. Meyer, sales manager of the Appliance Div., Trion, Inc. "It is estimated," Mr. Meyer says, "that at least 10 per cent of the homes in which central air conditioning is installed will be equipped with electronic air cleaners." He predicts that in 1954, installations of electronic air cleaners will total approximately 12,000.

Says Forced Warm Air Is Best Heating System

IN THE NOVEMBER issue of Changing Times, a consumer magazine, a report on "up-

LOCKFORMER.....

**Pushbutton
Production
Piles up
PROFITS**



Push the button on your Lockformer and start up your own high speed, one-man production line. This easy way of getting more work done with less labor effort has one major advantage: **MORE PROFITS!**

Whether your shop is large or small, in the city or out in the country, doesn't matter. If you fabricate sheet metal, a Lockformer will pay you back its cost over and over again. Ask anybody.

Send for your copy of the new Lockformer Catalog today



ONE MAN WITH A LOCKFORMER MAKES MORE PITTSBURGH LOCKS THAN SIXTEEN MEN WITH EIGHT BRAKES

THE LOCKFORMER CO.

4615 West Roosevelt Road Chicago 50, Illinois

the editor's notebook

(continued)

to-date heating for the home owner" tells about each type of heating system that can be used for residential heating. Each system is evaluated — both pro and con — with the result that the forced warm air system stands out as offering more advantages than any other method of heating. The articles say, "Cheaper than hot water or steam, suited to automatic control, uses small ducts, filters air, maintains circulation. Furnace need not be centrally located." For perimeter heating, it says "Warms floors, combats drafts."

Ship More Gas Fired Furnaces and Burners

GAS FIRED furnaces shipped during August totaled 46,900, according to the Gas Appliance Manufacturers Association. This brought the total for the first eight months of the year to 305,699, an increase of 17.7 per cent over the total for a similar period of 1952. Gas conversion burners shipped during the first eight months of this year totaled 124,200, a 1 per cent gain over last year's eight month total.

New Housing Code Permits Fixed Windows

THE CITY OF Portland, Ore., recently amended the housing code to allow fixed windows in residences, provided certain minimum mechanical ventilation is incorporated into the design of the heating system. The provisions of the new amendment are as follows: That a heating plan be submitted with the building plans indicating outside air intake, duct and register sizes; that the air heating unit be either a direct fired warm air furnace or a steam or hot water transfer unit;



Enthusiastic reception by the public explains the higher sales frequency of the Sundstrand all-electric oil burners.

With a Sundstrand, the most modern concepts of warm air heating are realized.

... That's not enough; with a Sundstrand, initial low-cost is matched by long-span oil burner performance.

... These values and the Sundstrand reputation for the finest in oil heating add up to complete customer satisfaction. Foot or bracket mounted, all Sundstrand oil burners are listed as standard by Underwriters' Laboratories . . . and meet all state and local requirements.

A leader in oil heating for 33 years.

write to

SUNDSTRAND ENGINEERING CO.
ROCKFORD, ILLINOIS

the editor's notebook

(continued)

that the unit provide an outside air change which is equal to the volume of the house for each hour of operation; and that the outside air intake duct be sized to not less than 15 per cent of the area of the cold air returns, the damper in the outdoor air duct having a closure which will not exceed 75 per cent of the duct area.

Artisan Surveys Reader Preferences

RECENTLY we mailed an inquiry letter to a large number of our subscribers asking for the return of a reply card indicating preferences for articles on warm air heating, residential air conditioning and sheet metal contracting.

We want to take this opportunity to thank the many who returned the inquiry cards for their comments.

If you were one of those who did not receive a card, we would be pleased to know which types of articles — warm air heating, residential air conditioning, or sheet metal contracting — contain material of principal interest to you.

Just drop us a card listing the three fields covered and indicate your choice by inserting a "1" opposite the field of most interest, a "2" opposite your second choice, and a "3" opposite the third. Address your comments to: The Editor, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

Sees Rapid Growth In Electronic Controls

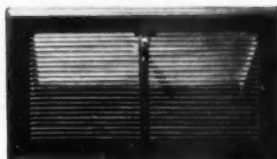
JOHN E. HAINES, vice president, Minneapolis-Honeywell Regulator Co., addressing the Nebraska Chapter of the American Society of Heating and Ventilating Engineers, predicted that by 1963

Char-Gale

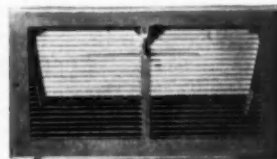
The Right Register FOR YOUR CONVENTIONAL INSTALLATIONS

Your best source of conventional registers is still Char-Gale, whether you are installing forced air systems, gravity systems, or both. While introducing many improvements in the small pipe system, we at Char-Gale want to remind you that we are continuing our production of conventional registers. They're still coming off our production lines to give you proper air distribution and customer satisfaction. For more information, contact your jobber.

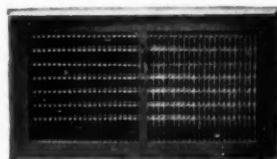
for FORCED AIR SYSTEMS



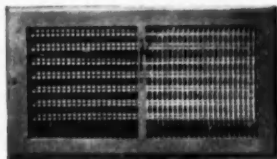
STYLE 400 Single Valve
Baseboard Register



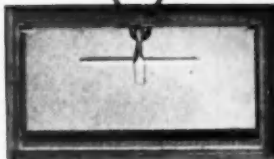
STYLE 410 Single Valve
Sidewall Register



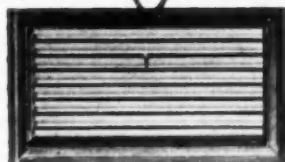
STYLE 402 Multiple Vane
Baseboard Register



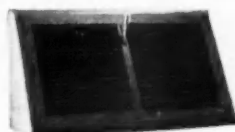
STYLE 412 Multiple Vane
Sidewall Register



Rear View STYLES 400 and 410



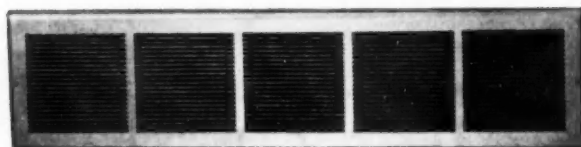
Rear View STYLES 402 and 412



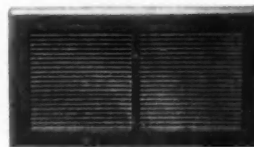
STYLE 403 Single Valve
Out-of-Wall Register



STYLE 418 Return Air
Out-of-Wall Register



STYLE 415 Return Air Baseboard Vent (Long)
STYLE 420 Return Air Sidewall Vent (Long)



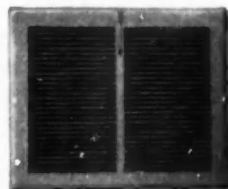
STYLE 415 Return Air Baseboard Vent
STYLE 420 Return Air Sidewall Vent

Also

SPACE-
SAVING
TIME-
SAVING
LABOR-
SAVING
CHAR-GALE
PACKAGED
FITTINGS



STYLE 810, 812, 912, 1113
Baseboard Register

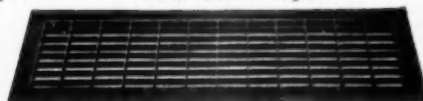


STYLE 807 and 808
"Wafer" Sidewall Register

for GRAVITY SYSTEMS



Floor Register



Steel Face Return Air Floor Register

CHAR-GALE
MANUFACTURING COMPANY
ANOKA, MINNESOTA

the editor's notebook

(continued)

homes may be made partly of plastic, will have electronically-controlled air conditioning and heating. "We are entering an automatic world where electronics will do things for us we cannot now imagine," he said. Declaring that engineering and research would result in tremendous technological advances in every direction, Mr. Haines predicted that within the next 10 years residential air conditioning will become as commonplace as automatic heating is today, and will be controlled electronically. He feels that in this time, plastics will replace many metals and building materials, and complete buildings will be made of plastic materials.

Mr. Haines said that the sale of residential automatic central heating units would reach 2 million annually by 1963, bringing the total number in use by then to about 25 million. Today there are about 14 million.

"Central air conditioning in homes is just getting a good start," he said, "and should rise to more than half a million units by 1963. The air conditioning industry as a whole should reach a retail sales volume of \$5 billion in 1963."

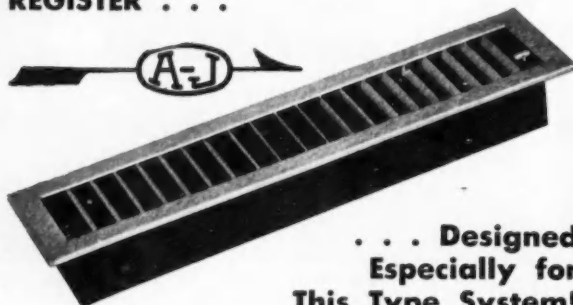
Predict 1954 Will Be Good Construction Year

CONSTRUCTION in the 37 states east of the Rockies will decline only 3 per cent in 1954 as compared with 1953, in the opinion of F. W. Dodge Corp. The estimate is that dwelling unit starts in 1954 will decline 10 per cent. Public works and utilities are expected to show a 7 per cent gain. Non-residential totals are expected to decline 2 per cent. Estimated totals, including both private and public ownership, for the 37 eastern states (with figures in

● ARE YOU INTERESTED IN

PERIMETER HEATING?

Here's a New
Diffuser
REGISTER . . .



. . . Designed
Especially for
This Type System!

This diffusing type floor register was carefully engineered, in cooperation with heating specialists, to provide the answer for a perfect outlet for perimeter heat!

It's ruggedly constructed. The heavy gauge curved vanes are factory-set to deliver a uniform fan-shaped pattern of air to cover the window areas or cold outer walls.

The 4" and 6" widths have multiple louvers. The 2 1/4" width has a single louver, embossed for greater rigidity. A special lock screw allows you to set the valve louvers so they cannot be opened beyond the desired position after system is balanced. Louvers close tightly to completely shut off air flow when desired.

AVAILABLE IN SEVEN SIZES!

14 x 2 1/4 10 x 4 12 x 4 14 x 4 10 x 6 12 x 6 14 x 6

CHOICE OF FINISHES

A-J Perimeter Registers may be ordered in any of these finishes: Gray prime, Gray Hammertone, Bronze Hammertone, Black Japan, Golden Oak or White Japan.

YOU'LL USE IT MANY PLACES!

The narrow width of this register makes it ideal for numerous installations other than perimeter heating. For instance: In stair risers, under kitchen cabinets, in sills of picture windows. It may also be used as a side wall outlet with high velocity systems. It is *vibration-free!*



A - J
Manufacturing Co.

Dept. A-12
2119 Washington St.
Kansas City Missouri

the editor's notebook

(continued)

thousands of dollars) are as follows: Non-residential, \$6,563,000 in 1953 and \$6,410,000 in 1954, a drop of 2 per cent; residential, \$6,201,000 in 1953 and \$5,575,000 in 1954, a drop of 10 per cent; total building, \$12,764,000 in 1953 and \$11,985,000 in 1954, a drop of 6 per cent; public work and utilities, \$3,775,000 in 1953 and \$4,025,000 in 1954, a gain of 7 per cent. Total construction: (1953) \$16,539,000; (1954) \$16,010,000, a drop of 3 per cent.

Cooling To Be Featured At NAHB Convention

THE NATIONAL Association of Home Builders will observe its 10th anniversary convention and exposition with "the largest building products show in its history." Approximately 20,000 builders, architects, suppliers and others from the industry are expected to attend the meeting in Chicago's Conrad Hilton and Sherman Hotels, January 17 to 21. Slated for extensive coverage is the subject of residential air conditioning. Information about the costs, selling features, installation and use of various types of equipment will be presented at the show, according to convention chairman Henry Fett. In addition, he said, in the exposition, builders will be able to inspect the central and room type units made by all major manufacturers and decide which makes and models are best for their particular needs.

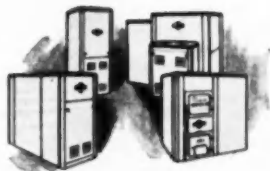
1953 Sees Record Cooling Sales

RECORD BREAKING sales of air conditioning equipment in the residential range were reported recently by Servel, Inc. The company's sales volume

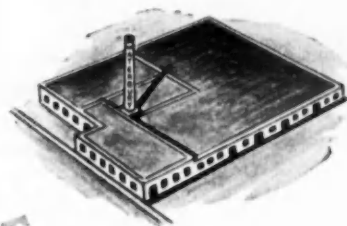
it takes all four...

TO GIVE DEALER SATISFACTION

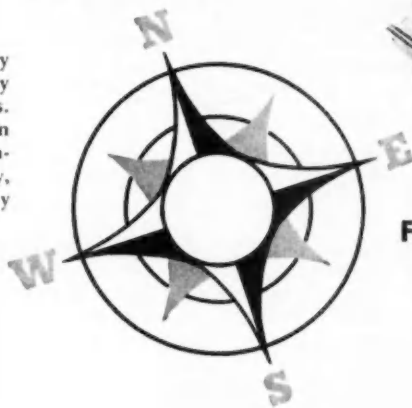
PRODUCT . . . Every Waterbury furnace, air conditioner and gas conversion burner must meet the highest standards in warm air heating equipment. This is in line with the belief that "It's what's under the casing that counts!"



POLICY . . . Waterman-Waterbury maintains a clearly-stated policy towards dealers and distributors. It includes exclusive distribution rights, a close, personal relationship between dealers and factory, and a complete line of quality equipment.



FACTORY . . . For over 45 years, the Waterman-Waterbury Company factory has combined the finest efforts of skilled craftsmen and experts in heating. The result has been continuing customer satisfaction with Waterbury.



Waterbury

FURNACES AND
WINTER AIR CONDITIONERS



MARKET . . . National advertising and the testimony of satisfied customers give prospective customers confidence in Waterbury. Effective merchandising and local advertising help these prospects become satisfied customers.

Dealers at all points of the compass find that association with Waterbury is good business. Their satisfaction is based on a number of reasons, including the four given here. Waterbury dealers know that Waterbury is the right line, with the right policy for them.

"It's what's under the casing that counts!"

The Waterman-Waterbury Co.

OVER 46 YEARS OF WARM AIR HEATING

1122 Jackson Street N.E.



Minneapolis 13, Minnesota

the editor's notebook

(continued)

on year 'round air conditioners is already far ahead of 1952 figures, according to John A. Gilbreath, assistant vice president in charge of air conditioning. "We expected 1953 to be a good year," he said, "and it has fulfilled our expectations. This upturn has been reflected in the sale of every model in the line."

More Gas for Ohio Area

THE PUBLIC Utilities Commission of Ohio has ordered the Ohio Fuel Gas Co. and its wholesale customers to add 10,722 space heating customers by the end of the year. Of the 10,722 installations authorized, Ohio Fuel Gas Co. will put 47 per cent in its own operating territory. The Cincinnati Gas and Electric Co. will get 20.8 per cent; Dayton Power and Light Co., 18.4 per cent; West Ohio Gas Co., 2.85 per cent; and Portsmouth Gas Co., 1.65 per cent. The Manufacturers Light and Heat Co. and the Natural Gas Co. of West Virginia will divide 6.75 per cent, and 23 other smaller companies and communities will split the remainder. The commission estimated that approximately 82,000 new and conversion units would be added in Ohio in 1953 as a result of its orders.

\$6.5 Billion for Home Modernization

BY THE END of this year, according to the Chamber of Commerce of the United States, Americans will have spent about \$6.5 billion to modernize residential property, and next year the figure may go higher. One reason is the growing American family. Government census figures show that since 1940 the number of families with



Mean More Profit

Closing the books at the year's end tells two stories — one of profit — the other of quality — and they can rarely be separated. The high quality of Ohio Valley furnace fittings has produced a profit year after year for warm air contractors who use them.

Ohio Valley's quality and fast, efficient service to wholesalers helps contractors make more money.

Carried in stock by leading wholesalers.

Write for our catalog.



Ohio Valley Hardware & Roofing Company
METAL MANUFACTURING DIVISION, EVANSVILLE, IND.

the editor's notebook

(continued)

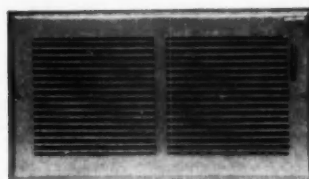
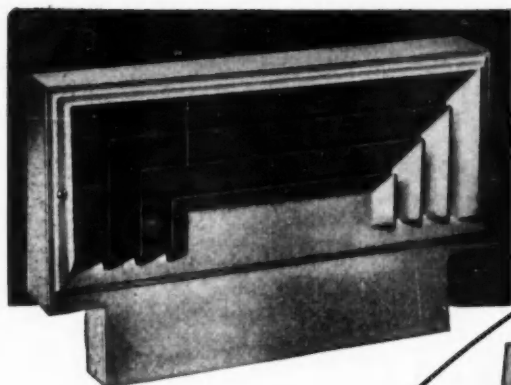
three children has increased by 77 per cent, those with four children by 50 per cent, and those with five, by 27 per cent. An addition to the family may mean an addition to the house.

Sees Growing Market for Heat Pumps

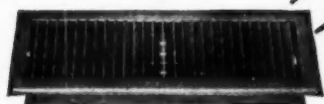
SPEAKING on the subject of heat pumps at the third annual operation and sales conference of the Florida Power Corp. in St. Petersburg, Fla., Mark Mooney, vice president, Typhoon Air Conditioning Co., Inc., predicted that within 10 years there would be 80,000 heat pumps sold annually by the air conditioning industry. "This goal can be reached," he said, "if the industry continues its rapid progress toward lower prices and compact, smart-appearing, less complicated heat pumps."

Demand for Cooling Continues to Grow

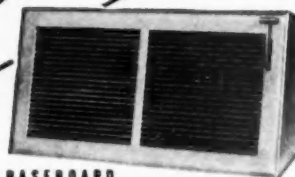
REGARDLESS of any general business setback, the air conditioning industry appears headed for expansion over the next few years at least, according to Wesley J. Peoples, president, United States Air Conditioning Corp. "The tremendous demand for air conditioning of all kinds will require years of the industry's peak production," Mr. Peoples said. "Public demand for modern air conditioning facilities in older structures alone will provide a tremendous market for the industry." Possibly the greatest expansion in the air conditioning industry, he pointed out, will be in year 'round installations. "Already, builders of even modest priced homes are offering year 'round air conditioning as the outstanding feature of the buildings," he said.



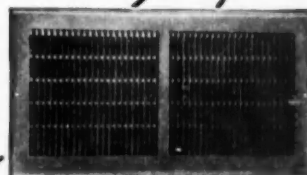
HORIZONTAL FIN SIDEWALL #20



PERIMETER FLOOR REGISTER #512



BASEBOARD PROJECTION REGISTER #243



VERTICAL FIN SIDEWALL #30

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JOBBER:

Hundreds of outstanding MIDCO jobbers now serve dealers, contractors, architects, builders and buyers throughout the nation.

Additional jobber outlets are available in some areas. Send coupon at once for information and catalog.



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You'll recognize how the beauty of MIDCO grilles and registers results from sound designing and skillful fabrication. They enhance the attractiveness of any room.

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You'll find a style or design to meet any standard specification in MIDCO'S line of high and medium velocity, conventional forced air and gravity registers, grilles, floor faces and floor registers.

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You'll appreciate the fact that MIDCO units are supplied in all commonly used sizes—for example, Nos. 30 and 34 multiple louvre registers come in 44 sizes, from 6x4" to 30x10".

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You'll agree that the pricing of MIDCO products compares favorably with similar lines. Further economies arise from the ease of installation and permanent durability of the MIDCO line.

**THESE FACTS CREATE MIDCO'S DEMAND...
PRODUCE GREATER PROFITS FOR YOU!**

Please send me full information on the MIDCO line and your proposition to jobbers.

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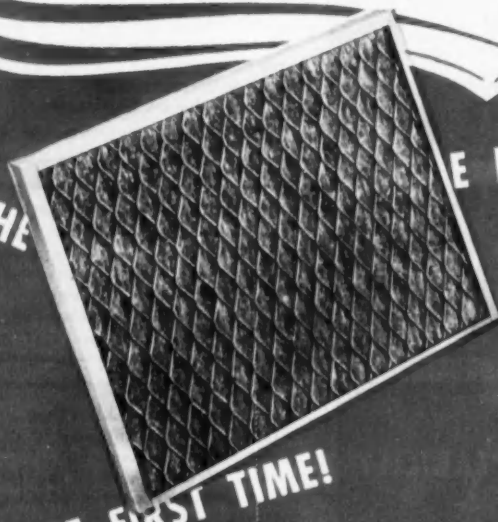
A-LUM-O-AIRE

PERMANENT FILTER

is available to the
domestic market



FOR THE FIRST TIME!



FOR THE FIRST TIME!

A-LUM-O-AIRE is a permanent "dry" type air filter designed for top efficiency in all forms of heating, air conditioning and ventilation applications. It is of all-metal construction and is completely rustproof and fireproof. No oils or adhesives are required. Frames are of aluminized steel with welded corners for extra strength. Mat retainers are made from heavy-gauge expanded steel and plated after cutting to size.

The filter media is ALUMINO Aluminum wool consists of continuous strands with 60 short fibers. In a 20 x 20 x 2 filter there is an area of over 59 square feet with millions of tiny barbs which effectively catch and hold the dust. When dirty, A-LUM-O-AIRE

is easily cleaned by flushing with cold water. It is designed to last the life of an ordinary furnace. A-LUM-O-AIRE filters are available in all standard 1" and 2" sizes. Special sizes can be made to order. Copper wool filter media with copper-plated mat retainers are also available. A-LUM-O-AIRE filters can be loaded with the proper filter media to meet any specific requirement.

Wherever quality performance and permanence is desired, you'll find the installation of A-LUM-O-AIRE filters pay off in satisfaction and economical maintenance cost.

Manufacturers Agents, Sales Representatives and exclusive distributorship inquiries are invited. This is an opportunity to get in on the ground floor with a product they ask for today and will demand tomorrow. Sales and advertising helps to meet local requirements.

METAL WOOL DIVISION OF
CAREY ELECTRONIC ENG. CO.
SPRINGFIELD, OHIO



**ONE
FIXTURE
SUPPLIES
BOTH
LIGHT
AND
AIR**

IT'S THE NEW Kno-Draft KHL Overhead Air Diffuser — combining the finest method of warm air distribution for homes with a handsome efficient lamp. It diffuses *light* as it diffuses *air*.

Kno-Draft Overhead Air Diffusers deliver warm or cool air at ceiling level and mix it with room air well above the heads of room occupants. Under-window returns draw cold air immediately to furnace or cooler for proper conditioning. The greatest possible comfort results — no drafts, no blasts of hot or cold air, even temperature throughout the room.

Other advantages: Kno-Draft allows complete freedom in furniture placement, assures complete freedom from smudged walls or ceilings, economy in both installation and operation. Kno-Draft jobs are easy to figure, easy to install, highly profitable.

Now, with the Kno-Draft KHL Overhead Air Diffuser, you can combine *in one fixture* both light and air diffusion. A variety of styles and lamp sizes are available. Mail coupon today for full details. Connor Engineering Corporation, Danbury, Conn.

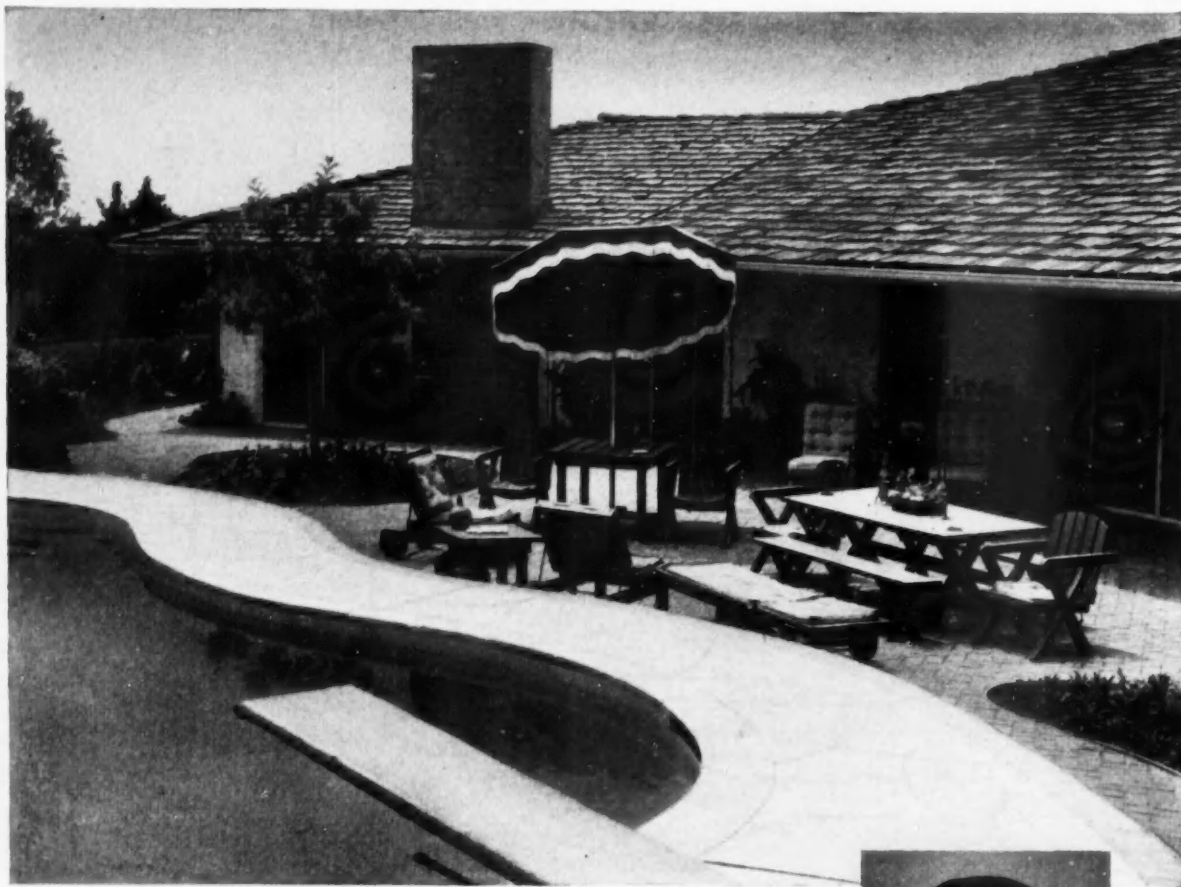
CONNOR

kno·draft®
residential air diffusers

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Please send () full information on Kno-Draft Overhead Air Diffusers; () data and prices on the new Kno-Draft Integral Lighting Fixtures.

Name
Position
Company
Street
City Zone State



The beautiful home of Mr. & Mrs. Howard C. Fletcher, Sr., Altadena, California

"In California Zone Control is practically a necessity for real comfort"

says dealer contractor Al Ottum of Los Angeles

"Sure. The rambling ranch-style house that dominates the landscape out here must be *zoned* to provide real comfort.

"I found that out when I engineered and installed my first zone control job seven years ago—to say nothing of the some 400 jobs I've put in since then.

"But when talking to a home owner, I never try to sell a *Zone Control system*, as such. Rather, I talk of comfort and convenience; how an entire home can be maintained at a perfect level of comfort always, by simply having it zoned according

to its living areas and outside exposure; and how the bedrooms can be kept at a different temperature from the rest of the rooms, for more healthful sleeping.

"A heating job well done should give the heating contractor personal satisfaction as well as a good profit. I've found I get *both* with every Honeywell Zone Control job I install.

"I set the controls to maintain the temperature my customer wants, and have no worries about future service calls. The only thing I leave is a *satisfied customer*—every time."



Al Ottum, owner of Radiant Sales and Engineering Co., Los Angeles, California.



*Another Plus-Profit
Product from Honeywell*



"Many customers — like the Fletchers here — tell me they forget they even have a heating system!"

"Probably the finest compliment that can be paid to a heating contractor is to have a customer come back and tell him: 'Why, we don't know we even have a heating system!'"

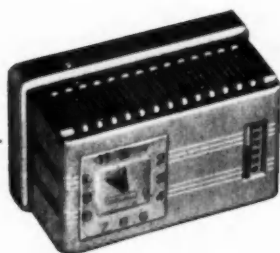
"As you can see from the diagram above, I broke the Fletcher home down into three areas of control. The living and service area is maintained at 72 degrees; the bedrooms at a lower temperature for more comfortable sleeping. The third zone is for radiant panels in the swimming pool.

"The Fletchers never dreamed such comfort was possible. And they couldn't get over the fact that the same equipment that heats the house also provides a comfortable pool temperature. They saw and appreciated how this meant economy as well as a less complicated boiler room.

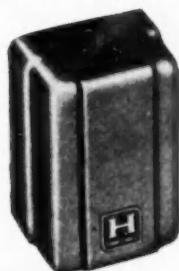
"Zone control is easy to install. And I like to use the Honeywell electronic system because it is by far the best control system made. It's simple, and has few moving parts to wear out."

Honeywell has controls for any type zone control job!

Here are three examples:



1. Electronic Chronotherm — famous, fully automatic clock thermostat. Provides night shut-down, automatic morning pick-up for 24-hour control.



2. Electronic Weathercaster — located outside the house. It senses and sends signals on changes in the weather to the system indoors, automatically.



3. Electronic Relay Amplifier — receives and sends messages for heat in proportion to heat demands sent by Chronotherm indoors and Weathercaster located outside the house.

For complete information and application data on famous Honeywell Zone Control, call your local Honeywell office. Or write Honeywell, Department AA-12-36, Minneapolis 8, Minn.

MINNEAPOLIS
Honeywell



First in Controls

104 OFFICES ACROSS THE NATION

Lowest priced Delco forced air furnace ever made means profit sales to builders!

NEW DELCO-HEAT
OIL-FIRED FORCED AIR FURNACE
FEATURES NEW, MODERN,
MASS PRODUCTION
WRAP-AROUND DESIGN FOR
LOWEST BIDDING PRICE
EVER OFFERED
DEALERS!



**Costly frills and extras
eliminated without sacrificing quality**



Here's the Delco-Heat answer to builders' need for a lower-priced heating plant that will permit them to make profitable installations and offset rising costs. With this unit you have a real sales-making bidding price for builders, with proper profits for you, and you can still guarantee real comfort, economy and service-free operation.

The value-leader OBC75-H Oil-Fired Conditionair has exclusive new wrap-around steel cabinet with Delco Green enamel finish. The 16 ga. steel Heat Transfer Unit is seam welded to eliminate combustion leaks. The Circle-Air Radiator adds an extra heating surface—improves efficiency. Other great Delco features are the Quik-Action stainless steel

combustion chamber; Delco-Heat Pressure Oil Burner powered by the vibration-free Rigidframe Motor; Centrifugal Blower; replaceable air filter; wrap-around wipe sheets; knockouts in side panels that permit installation of filter at either position; and base pan with knockout for floor return.

Similar in every detail, the new Model GBC90-H also meets the builder demand for a value-leader Gas-Fired Conditionair. Both models are shipped assembled for easy installation.

For more information, write or wire: Delco Appliance Division, Dept. AA, General Motors Corp., Rochester 1, N.Y. In Canada: Delco-Heat, Toronto 13, Ontario.

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**GENERAL MOTORS
DELCO-HEAT**

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...your keys to Sales Success

... a complete line of automatic oil- and gas-fired conversion burners, Conditionair forced warm air furnaces, boilers, and electric water systems

THANKS TO YOU
OUR LOYAL FRIENDS and CUSTOMERS

... for your generous patronage and our
continued position as the largest
producers of Registers, Grilles and Diffusers

**MAY YOURS BE
A MERRY**

Christmas
and a
PROSPEROUS 1954!

We pledge ourselves in the year that
lies ahead to bend every effort towards
providing you with products that
are definitely the finest to be had
and the type of service that
assures a happy, profitable relationship.



HART & COOLEY MANUFACTURING CO.

500 EAST EIGHTH STREET, HOLLAND, MICHIGAN
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PRODUCT OF THE WORLD'S LARGEST and MOST PROGRESSIVE PRODUCERS OF REGISTERS and GRILLES

Here's why the fluid heat WALL FLAME WARM AIR FURNACE is so easy to sell!

Dealers say it's easy to make customers out of your heating prospects when you have these Fluid Heat advantages to talk about.

ECONOMY OF OPERATION . . . The Fluid Heat Rotary Burner provides the maximum in fuel economy. It assures the greatest heat output from every drop of fuel oil used. Only one moving part—a fan that requires less power than a light bulb.

Because of the exclusive design of Fluid Heat's "Flameflex" hearth ring of stainless steel . . . which directs the flame to the inside walls of the combustion chamber . . . rapid transfer of every bit of available heat is possible. The oversized blower provides quietness of operation and can be adjusted for continuous air circulation. The one-piece welded steel base makes the cabinet dust-tight and leak-proof and provides for easy installation. An ideal unit because you have the most timely sales-clinching argument to make a cost-conscious prospect a "sold" customer.

MODERN DESIGN AND FINISH . . . The beauty of this cabinet, attractively finished in beige and red, will please your customers. Its functional design, with modern round corners, will save space without sacrificing heating efficiency. You can make customers of home owners and home builders alike because they appreciate these features which enhance home values.

With advantages like these, the Fluid Heat wall flame warm air furnace is easy to sell. Yes, it's another profitable unit in the Fluid Heat line. And remember, Fluid Heat is constantly pre-selling your prospects through national advertising. So for your share of the fastest-growing sales in the heating industry, talk Fluid Heat, show Fluid Heat, and you'll sell Fluid Heat profitably!



fluid heat
AUTOMATIC HEATING EQUIPMENT
"WORLD'S ECONOMY CHAMPION"

Division of ANCHOR POST PRODUCTS, INC.
6720 Eastern Avenue, Baltimore 24, Maryland
also Colbaugh Street, Red Oak, Iowa

A FLUID HEAT UNIT FOR EVERY HEATING PROBLEM



Famous Fluid Heat Pressure Burners. Four models, with firing rates from 7/10 to 12 gallons per hour.

Famous Fluid Heat Wall Flame Rotary Burner. Two models with firing rates from 7/10 to 4 1/2 gallons per hour.



OIL-FIRED UNITS

Famous Fluid Heat Boiler Burner Units. Six models, rated from 300 to 1090 sq. ft. of standing steam.

Famous Fluid Heat Warm Air Furnaces. Seven models, from 75,000 to 335,000 B.T.U. per hour.



GAS-FIRED UNITS

New Fluid Heat Gas-Fired Warm Air Furnaces with rated inputs of 70,000 to 140,000 B.T.U. per hour.

Single-port, self-piloting Fluid Heat Gas Conversion Burners. Rated inputs of 75,000 to 300,000 B.T.U. per hour.



WHY IT PAYS TO BUY STEEL FROM WAREHOUSE



You don't need to freeze money in inventory !

**WHEN YOU BUY STEEL FROM
WAREHOUSE, YOU GET:**

- LOWER INVENTORY COSTS
- LOWER SPACE COSTS
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- FEWER INVENTORY LOSSES

LET your U. S. Steel Supply warehouse serve as your inventory stock. Then you eliminate from your overhead the cost of carrying your own inventory, and free a substantial portion of your capital for other purposes. U. S. Steel Supply can always deliver the steel you want to your plant or job site at the time you specify. Just tell your U. S. Steel Supply salesman what you want . . . when . . . and where.

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General Office
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Warehouses and Sales Offices Coast to Coast

U N I T E D S T A T E S S T E E L

LOOK!

the first complete line of HUMIDIFIERS

Skuttle again demonstrates the vision which has kept them in a leadership position for years . . . the first complete line of humidifiers.

Now, you can sell humidifiers in any home with

any kind of heat . . . warm air, winter air conditioning, space heater, hot water, steam, and vapor.

Valves, floats and other operating parts are interchangeable . . . you carry less stock.



Patented Vapoglas Evaporating Plates

Pure glass wool compressed under heat. The most efficient plate you can get. All evaporating plates should be replaced when clogged with water chemicals about once a year.

New, Skuttle Model 450 for very compact warm air furnaces

Where space doesn't permit the use of a series 600 Humidifier, Model 450 does an excellent job. It can be used if there is 3" or more space between furnace and casing—in counterflow, low highboy, highboy, floor and other type furnaces as well as space heaters. High evaporation. Patented Vapoglas plates. Leak and corrosion proof glass float. Nickel and chrome plated brass valve parts. Aluminum plate rack. Evaporating pan is double coated acid and alkali resisting porcelain enamel on steel. Both regular and electronic corrosion are defeated by this type construction.

Installation is very easy . . . just cut a slot in casing.

Write for literature on this and other Skuttle Humidifiers

Skuttle

MANUFACTURING COMPANY

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6460

Skuttle Series 600 Humidifier . .

The most popular of all humidifiers both with the public and the heating man. Self-flushing, self-cleaning.

Skuttle Model . . . 250 Gas Fired

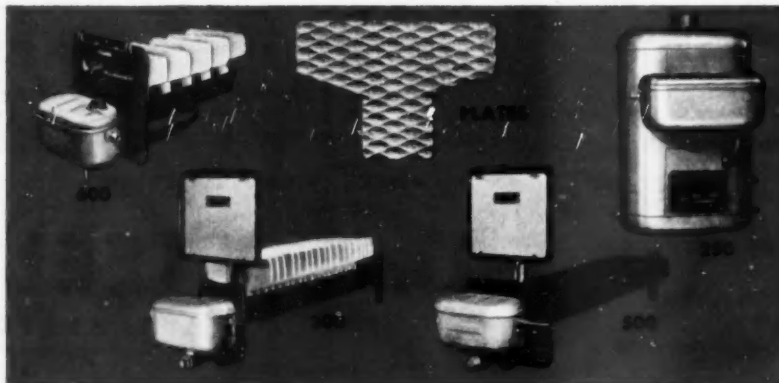
Independently gas fired for homes heated by steam or hot water.

Skuttle Series 300 for Large Homes

Holds up to 35 Vapoglas plates—for large homes warm air heated.

Skuttle Series 500 for Cool Fired Warm Air Heat

Needs no plates—for use in high temperature plenums.

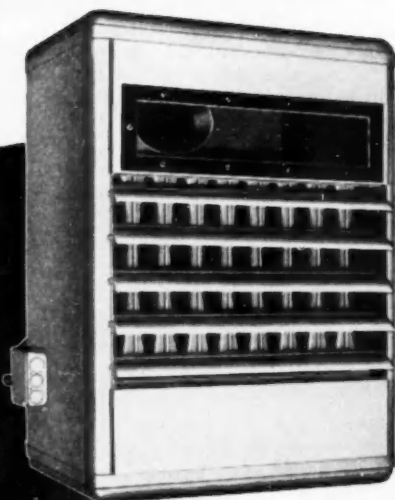


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GAS-FIRED

Unit Heaters

for Up and Out-of-the-Way Installations



**Priced to
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**Save Floor
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**Utilize Unused
Overhead
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4 SIZES

**60,000
to 170,000
B.T.U.**



*For installation in Stores ...
Offices ... Factories ... Schools ...
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and various other buildings
where floor space is valuable.*

Here is a profitable way to
supplement your regular furnace
business. See your Luxaire jobber for
complete details. Get the attractive competitive prices.

CHECK THESE OUTSTANDING FEATURES

1. Compact — requires a minimum of headroom.
2. Welded steel heating element with built-in draft hood.
3. Cast iron ribbon type burners.
4. Heat exchanger easily cleaned.
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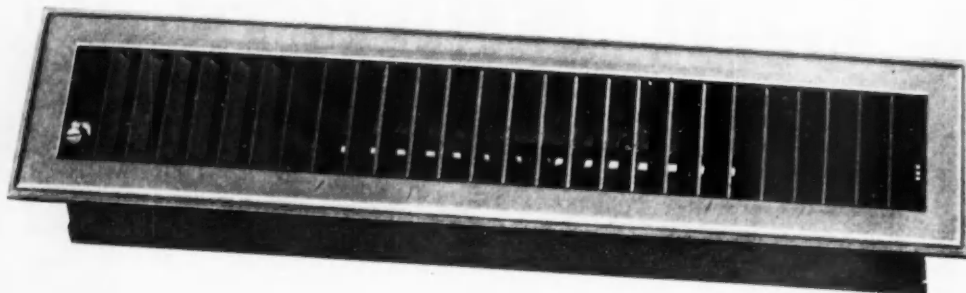
THE *Luxaire* C. A. OLSEN MANUFACTURING COMPANY • ELYRIA, OHIO
HEATING & AIR CONDITIONING UNITS



PERIMETER Floor and Base Diffuser REGISTERS "AT THEIR BEST"

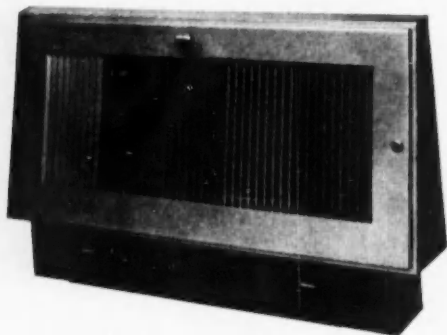
**No.
410**

**U. S. FLOOR
DIFFUSER
REGISTER**



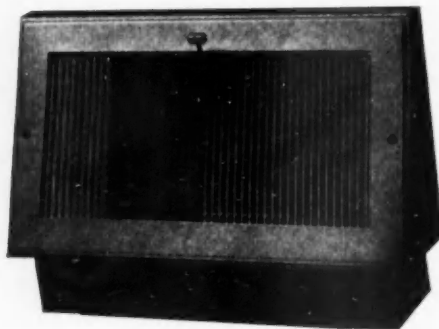
Broad blanketing coverage of cold glass and wall surfaces is assured when you install this neat, modern floor diffuser. Directional grille bars diffuse the air from 90° in center graduated to more than 45° at ends. Set-screw permits balancing air volume at the register without in-

terfering with closing of register. No. 410 has a narrow 5/8" outside frame and, when used in the special U. S. Greystone finish, provides comfortable air diffusion in the most unobtrusive manner.



No. 132¹/₄
U. S. Diffuser Base Register
For 4"-4 1/2"-5" Round Pipes

The Powerful "Little Fellow" that really spreads the air and satisfies the home owner. It's an out-of-wall design that saves the walls, curtains, and drapes from smoke, dust, and dirt discoloration. Gives you the greatest flexibility of location and greatest savings in first cost and in installation labor costs.



No. 133³/₄
U. S. Diffuser Base Register
For 6"-7"-8" Round Pipes

The Perfect Out-of-wall Register for Loop, Radial Loop, and Radial perimeter systems. Like the 132¹/₄ it avoids cutting large holes in rugs, carpets, or floors—yet provides wide diffusion over outside wall and window surfaces while avoiding soiling of curtains, draperies or walls. Set-lock permits balancing air volume at the register.



Send for Catalog No. 53 and latest prices—New 1954 Developments are "IN THE AIR" and Coming Soon.

UNITED STATES REGISTER COMPANY

BATTLE CREEK, MICHIGAN

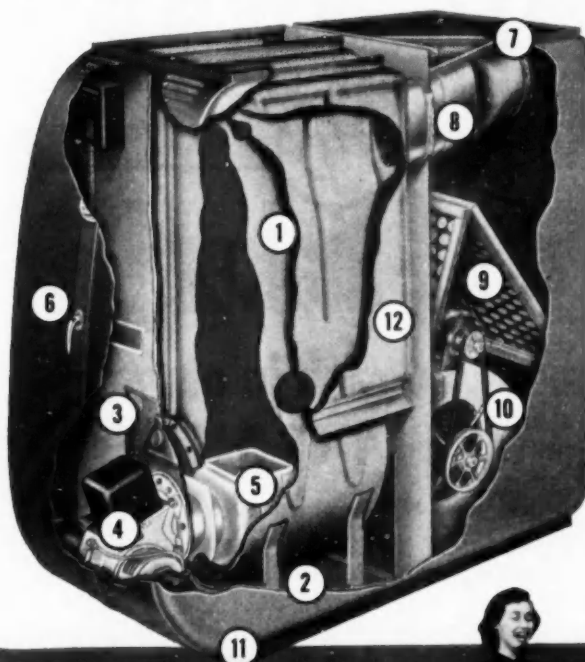
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SOLD BY LEADING JOBBERS FROM COAST TO COAST

New MOR-SUN Heat Exchangers

GUARANTEED

—to make your selling easier!



1. Guaranteed Heat Exchanger Gives More Heat
2. Aluminum Foil-Fiber Glass Insulation
3. Burner Parts Easily Accessible
4. Improved Oil and Gas Burners Interchangeable
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10. Quiet, Powerful Blower
11. Solid Base with Leveling Screws
12. Radiator Side Pans Increase Heating Surface

10 YEAR Written WARRANTY

Covers All MOR-SUN
HEAT EXCHANGERS



Mor-Sun Warm Air Furnaces — Gas or Oil Fired — come in 10 models, conventional or reverse flow. Output range 52,000 to 152,000 BTU's.

for MORE PROFIT
with MOR-SUN Mail this coupon

• Sell MOR-SUN Furnaces and you can sell with confidence. To make your sales job easier we offer MORE with MOR-SUN... a 10 Year written Guarantee on every MOR-SUN Heat Exchanger in addition to our standard one-year warranty on all complete units. Check these 12 points of superiority and you will see why we do not hesitate to guarantee any MOR-SUN Warm Air Furnace.

Don't pass up this opportunity to get *all* the details on how you can sell more heating systems... easier... at a greater profit! Fill in this coupon... prove to yourself that, to you as a heating equipment dealer... MOR-SUN offers MORE.

MORRISON STEEL PRODUCTS, INC.
609 Amherst Street, Buffalo 7, N. Y.

Gentlemen:

Please send me complete information on MOR-SUN'S Plan for Profits.

Firm Name _____

Address _____

City _____ Zone _____ State _____

(Please Check)

☐ Distributor ☐ Dealer ☐ Installer



MOR-SUN FURNACE DIVISION

MORRISON STEEL PRODUCTS, INC.

609 AMHERST STREET • BUFFALO 7, N. Y.

ALSO MANUFACTURERS OF ROLY-DOOR STEEL SECTIONAL GARAGE DOORS AND CARRY-ALL TRUCK BODIES

This **FREE**



Profit-maker Kit

helps you cash in on *more*
OIL HEATER SALES!

bigger and better than ever . . . you get everything you need to sell automatic heating—absolutely free!

HERE's a proven way to sell *automatic heating* conveniences to your oil space heater customers and prospects. With all this A-P profit-packed ammunition — mailers, newspaper ads, radio and TV spot announcements plus point-of-sale displays — you get the advantages of automatic heating across *fast!* And that works double for you — promotes more profitable space heater sales . . . brings new A-P accessory profits.

Cash in on this greatest of A-P campaigns in the big selling season **RIGHT NOW**. For complete details on this free profit powerhouse kit and dependable A-P controls — see your distributor or write today.

Sell added comfort, convenience and fuel savings this easy way!



COMFORT CONTROL

Fits any space heater equipped with A-P oil control valve. Comfortable automatic heating by setting the dial.



OILIFTER

Ends oil handling. No spilling. No messy cans. Completely automatic. Lifts to third story.



TRAPIT

Prevents trouble by straining fuel oil. Traps impurities and moisture. Gives years of protection.



DEPENDABLE Controls

.. for Air . . . Liquids . . . Gases . . . Refrigerants

• Kit contains everything needed to help you get started bringing **NEW PROFITS** your way. Gives you all the technical data and price lists too — so you can cash in on the heating season — **NOW**.

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for
perfect
heat
distribution



UTILITY'S NEW COUNTERFLOW FURNACES

You've wanted perimeter heating...combined with compactness and practicality. Now Utility offers you both in its new Counterflow Furnaces, capacity 70,000 and 105,000 BTU.

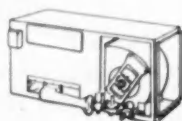
Here's greater power and more effective heat distribution—the result of Utility's oversize

blower...more economical, more efficient and quieter operation, thanks to Utility's Sy-lent* Heat Exchanger.

For perimeter and all low-duct installations, compare Utility's Counterflow with every other available type. For efficiency, ease of installation, low cost, and freedom from service problems, you'll choose Utility's Counterflow Furnaces to "sell the job." AGA-approved.

*Pat. Pending

See the complete UTILITY heating line now.



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AUTOMATIC GAS RANGES • UTILITY AUTOMATIC GAS HEATING
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Please send me free information on:

- ☐ Utility Automatic Heating Equipment
- ☐ Utility Cooling Equipment
- ☐ Utility Automatic Gas Water Heaters

Name

Address

City Zone State

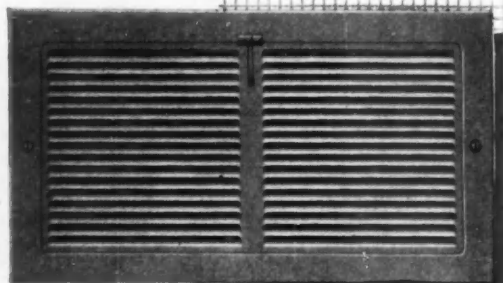
Auer fills all your Register needs FROM ONE RELIABLE SOURCE

Why not take advantage of the time-saving convenience of filling all your register needs from the complete dependable line made by The Auer Register Co.? Here are registers and grilles for all purposes—gravity or air conditioning.

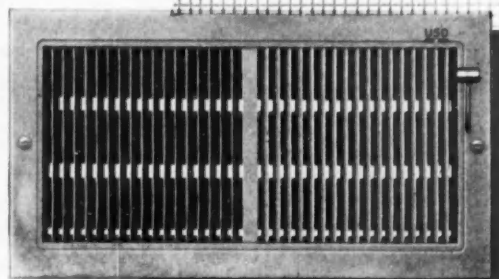
Auer **REGISTERS** QUALITY CONTROLLED PRODUCTION

When you install Auer registers, you have the assurance of accurate dimensions and uniform high quality—the result of Auer's system of strict quality control of production.

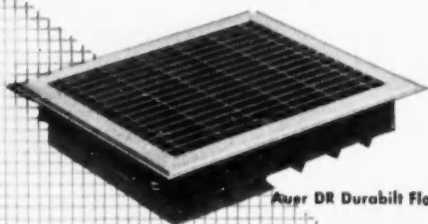
Write for complete information.



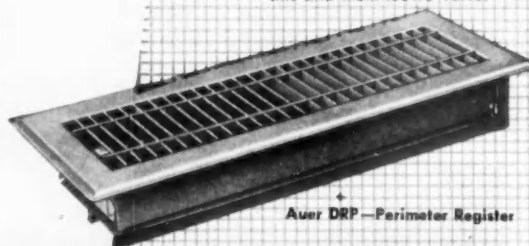
Auer No. 7032 Register with flexible fins and single valve.



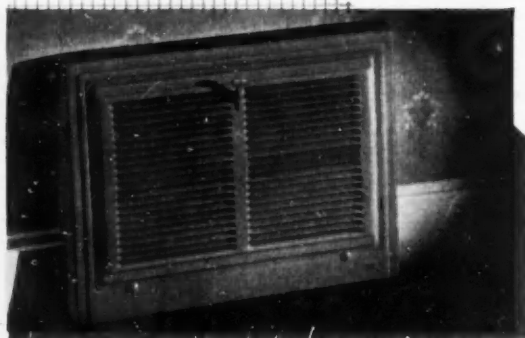
Auer No. 4432 Register with flexible fins and multi-leuvre valve.



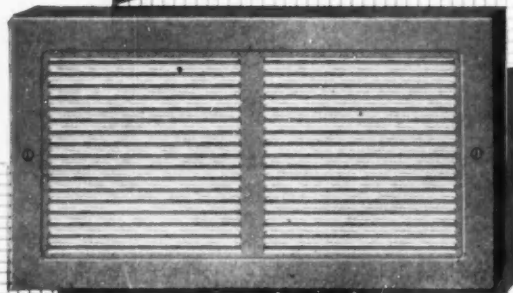
Auer DR Durabilt Floor Register



Auer DRP—Perimeter Register



Auer H-800 Heat Site Baseboard Register



Auer No. 7043 Baseboard Intake

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REGISTERS
and GRILLES

THE AUER REGISTER CO. 6600 CLEMENT AVE. • CLEVELAND 5, OHIO

Canadian Distributor—Marchand Furnace Ltd., Tilbury, Ont.

NOW!

NEW 1954 CHEVROLET TRUCKS



**Completely new—the most powerful, finest performing,
best-looking Advance-Design trucks ever built!**

Here's America's greatest truck builder's latest and greatest truck! Here's the brand-new line of Chevrolet Advance-Design trucks for 1954!

You'll find they're packed with great new features . . . loaded with big new advantages that mean faster, more efficient service and lower operating costs on *your* job.

**NEW POWER
AND ECONOMY**

You get new high-compression power and greater operating economy with *three* advanced valve-in-head engines. Bigger, brawnier "Thriftmaster 235" engine. Rugged, durable "Loadmaster 235" engine. Mighty, all-new "Jobmaster 261" engine*—most powerful in Chevrolet truck history.

Most trustworthy trucks on any job!



ADVANCE-DESIGN TRUCKS

**NEW RUGGEDNESS
AND RELIABILITY**

Heavier axle shafts on 2-ton models. Bigger, more durable clutches on light- and heavy-duty models. Stronger, more rigid frames on *all* models. New pickup and stake bodies are built to stand the roughest going and to keep coming back for more—and they give you greater load space for '54!

**NEW COMFORT
AND CONVENIENCE**

New Comfortmaster cab provides increased visibility with new one-piece curved windshield. New Ride Control Seat* brings you extra driver comfort. New truck Hydra-Matic transmission* offers the last word in no-shift driving ease. Available not only on ½- and ¾-ton Chevrolet trucks, but on 1-ton models, too!

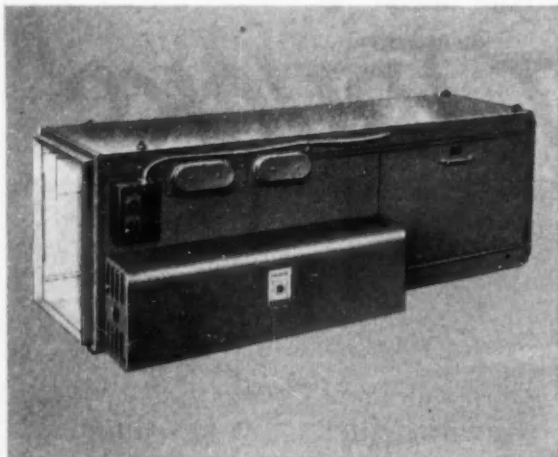
Plan to see the completely new '54 Chevrolet trucks, and get the whole money-saving story at your Chevrolet dealer's now. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

*Optional at extra cost. Ride Control Seat is standard on C.O.E. models, available on all other cab models as extra equipment. Rear corner windows in standard cab, optional at extra cost.

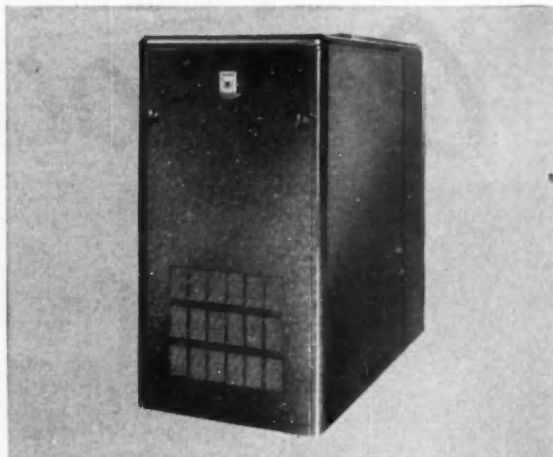
MORE CHEVROLET TRUCKS IN USE THAN ANY OTHER MAKE

PRODUCT NEWS YOU CAN USE

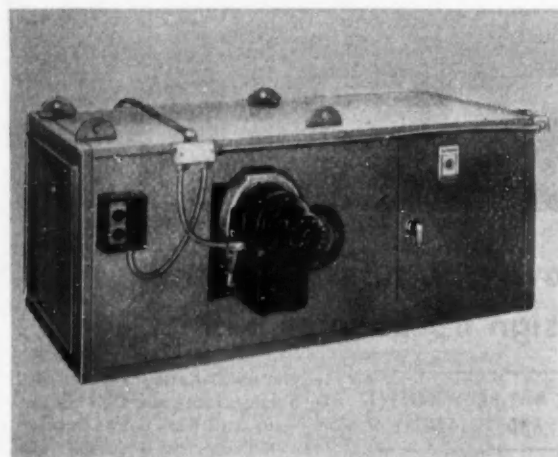
to sell more warm air heating and air conditioning jobs



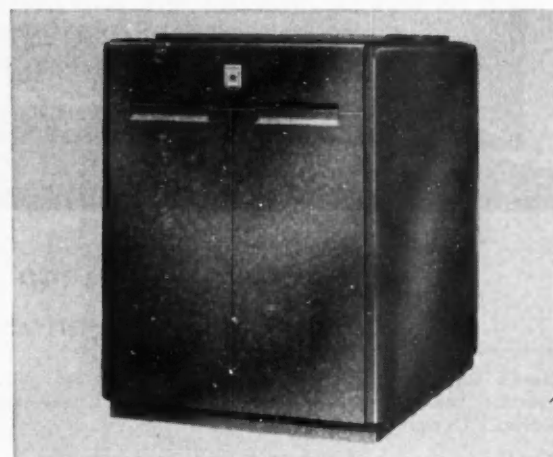
THE PAWNEE WINTER AIR CONDITIONER. This gas fired horizontal type unit is a space-saver in small homes. Can be safely installed in out-of-the-way places—in the attic or suspended from the ceiling, or in crawl space in basementless homes. Allows complete freedom of duct layout. Also ideal for perimeter heating jobs. This factory-assembled and pre-wired unit is available in three sizes—60,000, 80,000 and 100,000 Btu input per hour.



THE WINTERWAY WINTER AIR CONDITIONER. This oil fired steel base-ment type unit is available in three sizes—100,000, 120,000 and 150,000 Btu at register—to meet a wide range of heating requirements. Underwriters listed with flange type Arcoflame burner. Has right or left side flue connection, solid base pan with leveling screws for quick installation. Easily converted to A.G.A. approved gas unit with no change in capacity.



THE ORLANDO WINTER AIR CONDITIONER. An oil fired horizontal type unit that is ideal for virtually unlimited residential applications for perimeter or conventional duct systems. It is also ideal for suspended installation in small commercial buildings such as garages and service stations. Features heavy steel heating element coordinated with flange type Arcoflame oil burner. Available in 80,000, 100,000 and 112,000 Btu per hour at bonnet. Factory assembled and shipped with wiring harness for easy installation.



THE MOHAWK WINTER AIR CONDITIONER. A gas fired unit for home owners and builders who want the best. Features pre-heating of return air to save fuel and increase efficiency. Has a cast iron heat exchanger which resists action of burned gases and insures extra durability and longer life. Sturdy steel jacket in smooth Forge Red finish adds to customer appeal. Burns natural, mixed, manufactured, LP and LP-air gas. Available in eight sizes, from 80,000 to 300,000 Btu input per hour.

For more detailed information on these and forthcoming new products in the SUNBEAM line, contact your wholesale distributor. **Sunbeam Air Conditioner Division, American Radiator & Standard Sanitary Corporation, Bessemer Building, Pittsburgh 22, Pa.**



AMERICAN-Standard SUNBEAM AIR CONDITIONER DIVISION

ELYRIA, OHIO

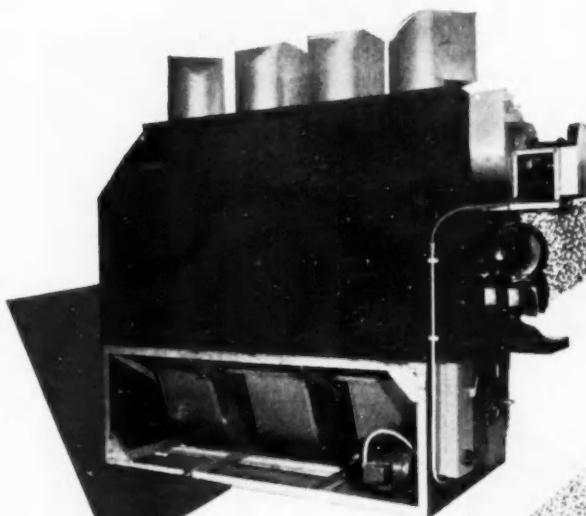
Executive Offices: Bessemer Building, Pittsburgh 22, Pa.

Serving home and industry: AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWANEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

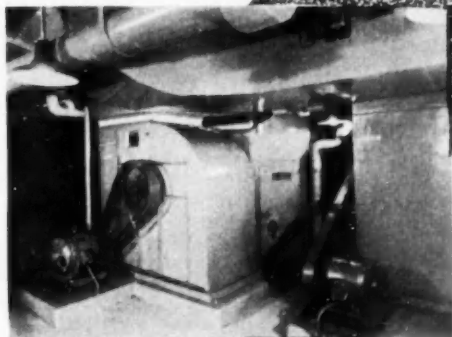
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Century MOTORS

PAY OFF IN PLEASED CUSTOMERS



2 h.p. and 1/4 h.p. Century motors power the blowers on this popular, direct-fired unit heater for commercial and industrial installation.



Two Century Motors installed on an Air Conditioning and Heating System in an office building.

400 TO 1/8 HORSEPOWER

Even years after you've made a Century motor-powered installation you'll continue to win praise from your customers for its quiet running and efficient operation.



Leading manufacturers of heating, ventilating and air conditioning equipment choose Century motors to bring out the best performance in their products. The wide range of Century motor sizes and types enables them to select exactly the right motor design and torque characteristics to do the job best.

For help with your motor problems—replacement or new applications—consult the Century Branch Office nearest you, or conveniently located Century distributor. A nationwide network of Century Service Stations is always at your service to help you keep your customers happy.



CENTURY ELECTRIC COMPANY

1806 Pine Street • St. Louis 3, Missouri
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*Jobs that count
call for...*

COP-R-LOY[®]

Galvanized Sheets

There's double protection against corrosion back of every sheet of Wheeling COP-R-LOY. First, Wheeling's famous COP-R-LOY formula in the base metal. Second, Wheeling's rugged galvanizing. Two big features that add up to better-looking, longer-lasting jobs. That's why, for over twenty-five years, users of galvanized sheets have called for COP-R-LOY!



*Steel does it better...
COP-R-LOY does it best!*

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LOUISVILLE MINNEAPOLIS NEW ORLEANS NEW YORK PHILADELPHIA RICHMOND ST. LOUIS

Propose Code of Trade Practices for Heating Wholesalers

THE NATIONAL Heating Wholesalers Association and other associations have proposed a number of trade practice rules for the wholesale heating industry, to be presented officially to the Federal Trade Commission for approval some time in January. The FTC hearing is intended to provide the rest of the industry with the opportunity of discussing the rules as they are now written.

The purpose of the proposed trade practice rules is to maintain free and fair competition in the industry — "to eliminate and prevent unfair methods of competition, unfair or deceptive acts or practices, and other trade abuses; and to promote higher standards of ethical business conduct."

The rules are divided into two main groups. Group I comprises illegal practices which would be prohibited under laws administered by the FTC. Appropriate proceedings in the public interest would be taken by the Commission to prevent the use, by any organization subject to its jurisdiction, of such unlawful methods. The second group of rules (Group II) is considered to be conducive to sound business methods and is to be promoted individually or through voluntary cooperation exercised in accordance with existing law. Non-observance of these rules would not in itself constitute violation of the law.

The rules proposed are listed as covering the following:

Group I

- Rule 1 — Misrepresentation and deception in general
- Rule 2 — Misrepresentation as to character of business
- Rule 3 — Misrepresenting products as conforming to standard
- Rule 4 — Misrepresentation of the term "free delivery"
- Rule 5 — Differentiating between wholesale and retail transactions
- Rule 6 — Substitution of products
- Rule 7 — False invoicing
- Rule 8 — Inducing breach of contract
- Rule 9 — Commercial bribery
- Rule 10 — Push money
- Rule 11 — Prohibited discrimination
- Rule 12 — Prohibited forms of trade restraints
- Rule 13 — Unlawful use of drop-shipment or direct-factory shipment prices
- Rule 14 — Price discrimination by making small deliveries at prices applicable only to large quantities
- Rule 15 — Selling below cost

Group II

- Rule A — Maintenance of accurate records
- Rule B — Repudiation of contracts
- Rule C — Coercion in sales
- Rule D — Statistical information

These rules are intended to cover all persons, firms, corporations or other organizations engaged as wholesalers or manufacturers' sales branches and sales offices

(as defined by the U.S. Bureau of the Census) in the wholesale distribution or sale of heating equipment and supplies, ducts, valves and fittings.

Group I rules are intended to protect the public and the heating wholesalers' customers (dealers, etc.) by making it unlawful to misrepresent facts in two main areas — product descriptions and cost descriptions. It is, for example, prohibited for products to be marked as being approved by some governmental authority or other agency (such as Underwriters' Laboratories) if they are not, or to be mis-marked in regard to type, size, capacity, etc. These rules are also intended to protect the heating wholesalers by outlawing such practices as rebates, bribes, etc., which inhibit free and open competition for customers.

The rules listed in Group II are intended to further the interests of the industry as a whole by promoting good management procedures, offering further protection against malpractices, and encouraging the collection and reporting of current market and cost data which may be used to advantage by all.

[Further information on these rules may be obtained from the National Heating Wholesalers Association, Inc., 27 E. Monroe St., Chicago 3, or from the Federal Trade Commission, Washington 25, D.C.]

Directory Section in Next Month's Issue

AMERICAN ARTISAN'S DIRECTORY of Warm Air Heating, Residential Air Conditioning and Sheet Metal Products—completely revised and brought up-to-date—will appear in the January issue.

Listing sheets have been mailed to thousands of firms throughout the country who manufacture the hundreds of items of equipment used in residential heating and air conditioning and sheet metal work for the latest information on what products will be available during 1954. The information is carefully classified for your use, along with complete street addresses and trade names.

The January issue will of course carry its regular quota of editorial content in addition to the Directory Section.

Twenty Comfort Schools in Four Months

TWENTY INDOOR COMFORT Schools (two-day heating and cooling conferences) have been scheduled by the National Warm Air Heating and Air Conditioning Association for the first four months of 1954. Located in major marketing areas throughout the country, these conferences will feature summer air conditioning instructions

WHAT'S HAPPENING —

(Continued from preceding page)

and will also present information on perimeter heating and small pipe systems. The association's Manual No. 11 will be used as the basis for the summer air conditioning instructions, and Manuals No. 4 and 10 will provide the material to be presented on the various methods of designing and installing perimeter heating.

Instruction on summer cooling will cover the association's recommended method of determining heat gains and the design of distribution systems for perimeter installations as well as systems using inside wall register locations. Information on heat loss calculation for those who desire it will be presented at a special session of the 1954 conferences.

Cities where 1954 conferences will be held are Birmingham, Boston, Buffalo, Chicago, Cleveland, Cincinnati, Columbus, Denver, Detroit, Harrisburg, Hartford, Los Angeles, Milwaukee, Minneapolis, Philadelphia, Pittsburgh, Portland (Ore.), Raleigh, San Francisco, and St. Louis.

Arrangements for these conferences will be handled, as in previous years, by manufacturers and wholesalers in the conference locations. Tuition fees for the 1954 conferences have been established at \$17.50 per person.

Plan Full Programs for Short Courses

PLANS FOR the college short course program have been moving steadily ahead since the last full meeting of the National Warm Air Heating and Air Conditioning Association's short course committee. Subjects that will be covered on all programs are:

- Heat Losses
- Air Distribution
- Testing Procedures
- Control Adjustments
- System Balancing
- Refrigeration Cycle
- Air Cleaning
- Moisture Control (Summer and Winter)
- Combustion
- Control Systems

Additional subjects of special interest to dealers in the areas covered by each college will also be included in the program for that school.

Pennsylvania State College has planned to have a special "advanced heating problem" on its program. Other special problems will be reported as the colleges complete their programs.

Chairmen of the courses, and the dates on which courses will be held, are:

Oklahoma A & M	Feb. 15, 16, 17, 18	Prof. R. R. Irwin
Purdue	Mar. 3, 4, 5, 6	Prof. M. M. McClure
Michigan State	Mar. 29, 30, 31, Apr. 1	Prof. C. H. Pesterfield
Penn State	Apr. 14, 15, 16, 17	Prof. T. A. Wright
Syracuse	Apr. 19, 20, 21	Prof. J. A. King
Iowa State	Apr. 21, 22, 23, 24	Prof. Marvin Gould
University of Wisconsin	July 13, 14, 15, 16	Prof. R. C. Tegtmeier

For advance information regarding any of these programs write direct to American Artisan.

1953 Volume Index to Be Available

AN INDEX FOR American Artisan's 1953 issues, Vol. 90, Nos. 1-12, is being compiled and will be available soon to the Artisan's subscribers on request. If you want a free copy, send a note or postcard to the Editor, American Artisan, 6 N. Michigan Ave., Chicago 2.

We'll keep your request on file until the index has been printed, and will then mail a copy to you.

Fan Manufacturers Form Association

THE PROPELLER Fan Manufacturers' Association recently consolidated with a group of 12 power roof ventilator manufacturers to form the Power Fan Manufacturers' Association. The association has 34 members whose products include axial fans, propeller fans, power roof ventilators, window, kitchen and attic fans. Primary purpose of the new association is to establish accurate delivery ratings. Other aims are the perfection of fan engineering, its application to users' problems and the development of markets.

Cooperate for Occupational Safety

A NATIONWIDE nine-point program has been approved by the coordinating committee of the President's conference on occupational safety, composed of leaders of American industry, labor and business, as well as state and federal agencies and private safety groups, according to a bulletin from the committee.

The conference, faced with 15,000 deaths and 2 million work injuries annually in business and agriculture, has taken as its basic purpose the reduction of accidents, particularly in construction work, manufacturing, public utilities and trade service.

The nine-point program as announced calls for:

1. Better accident reporting and analysis
2. Better machine guarding at the source of manufacture
3. Better safety education in schools, colleges and plants
4. A safety program in more companies
5. Greater worker participation in safety
6. Greater uniformity in state safety codes
7. More public employee safety
8. Better public understanding and support of accident prevention
9. Greater labor-management cooperation for safety

Heavy Turnovers in Home Ownership

SOME 78 MILLION people, or nearly half the population, changed their residence during the four year period from April 1947 to April 1951, according to a study of population and home ownership changes appearing in Housing Research No. 6, a quarterly publication of the Housing and Home Finance Agency. The article points out that the majority of people making such moves neither needs nor wants new housing, but is interested primarily in used houses. "As long as this ready market for used houses exists," it states, "the way is open to home owners to dispose of their old homes and thus acquire new ones better suited to their needs. This opens up the possibility for a large replacement market."

**Big heating news
for low-cost
homes!**

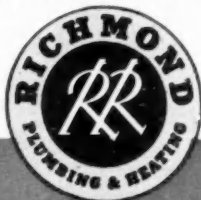
RICHMOND SR-G

*A profitable addition to
your gas heating line*

Here's a brand-new steel winter air conditioner—the Richmond SR-50-G—that's ideal for heating basementless homes with panel or sub-floor duct systems. This latest addition to Richmond's modern heating line fits easily and compactly into alcove, closet or utility room.

The Richmond SR-50-G is a fully automatic, factory-assembled counterflow unit with a 85,000 BTU/hr. input... a 12 gauge steel heat exchanger... a smart, light green hammer-tone casing... AGA approved. It is also available with oil burner controls (SR-50-P).

Quality-engineered with customary Richmond precision...designed to deliver maximum heat at minimum cost, the SR-G provides your customers with an outstanding value... provides you with a sure-fire seller.



*It pays to
push Richmond*

RICHMOND

RICHMOND RADIATOR CO.—AFFILIATE OF REYNOLDS METALS CO.



See your wholesaler or Mail Coupon Today

Richmond Radiator Company Dept. AA-12
Box 111, Metuchen, New Jersey

Please send me additional information on the new Richmond SR-G counterflow unit. No obligation, of course.

NAME.....

COMPANY.....

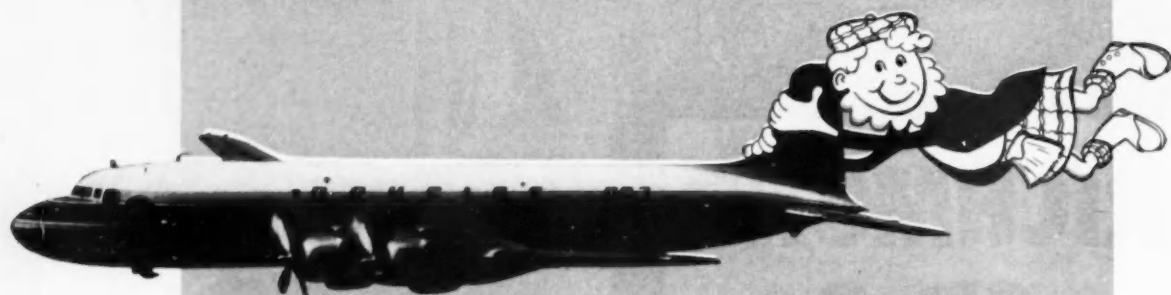
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piston-powered*

COMMERCIAL AIRLINER in the world



and

MicroRold
STAINLESS STEEL
is a part of it

More than 35 parts of it, in fact — in oil tanks, heaters, de-icers, exhaust assemblies, cowlings, engine mounts, gear structures and elsewhere! It's a wonderful feeling, for this is a wonderful airliner.

Every time one of these sleek, powerful, 365 miles-per-hour DC-7's takes off, Washington MicroRold Stainless Steel rides along. Every flight — every floating voyage down the skies — finds us there, in happy company with 69 comfortable safe passengers. Douglas, you see, demands de-

pendability . . . strength . . . highest quality . . . and we make MicroRold Stainless Steel to meet those rigid demands.

Thinness control, quality control, and consistency — all of these make MicroRold a vital part of the DC-7!

The "fly-word" of Douglas is dependability. One way to get dependability is to buy Washington Steel Corporation's MicroRold Stainless Steel Sheet and Strip.

Washington Steel

CORPORATION, WASHINGTON, PENNSYLVANIA



build **PROFITS** with **POWER**

NIAGARA

No. 172-18 Gage

ROTARY
Electric
combination machines

INCREASE PRODUCTION
IMPROVE QUALITY
BROADEN YOUR RANGE OF WORK
CONSERVE FLOOR SPACE

One Machine performs all these operations:

BURRING • TURNING
WIRING • BEADING
CIRCLE CUTTING
DISC FLANGING
BODY FLANGING
CRIMPING
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NIAGARA MACHINE & TOOL WORKS, BUFFALO 11, N. Y.

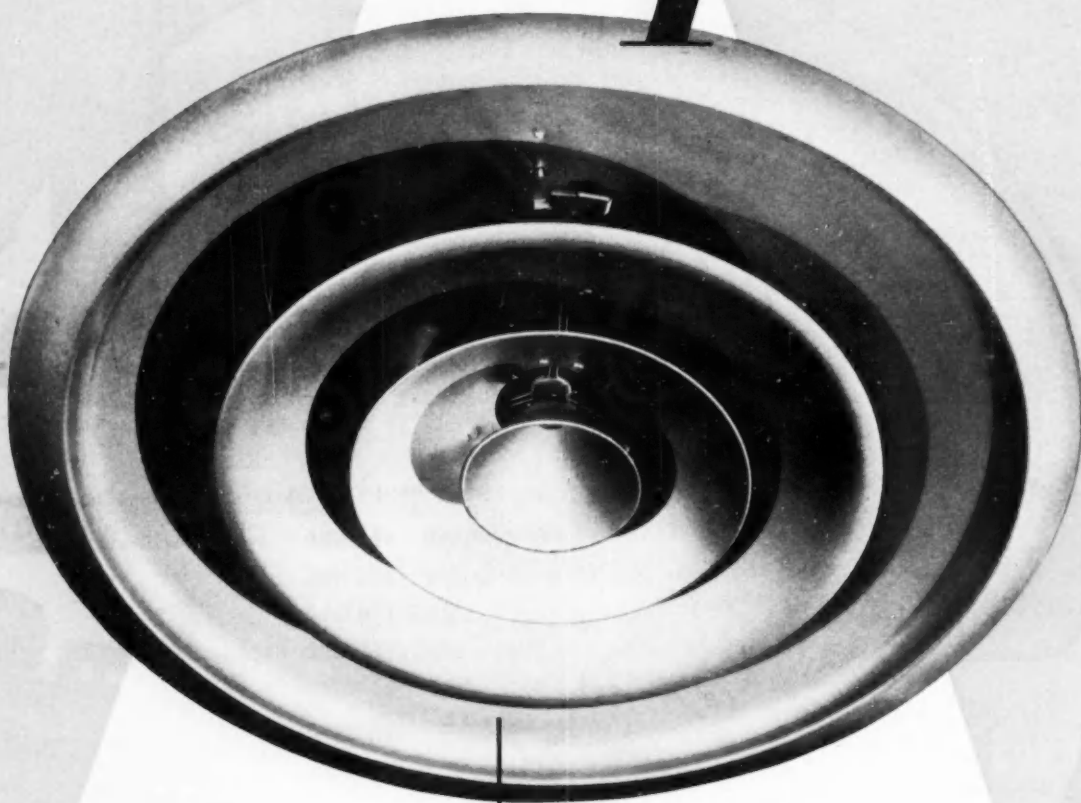
America's Most Complete Line of Presses, Shears, Machines and Tools for Sheet Metal Work

DISTRICT OFFICES: DETROIT • CLEVELAND • NEW YORK • PHILADELPHIA

DEALERS IN PRINCIPAL U. S. CITIES AND MAJOR FOREIGN COUNTRIES

ANEMOSTAT®

is a registered trademark



Leadership means integrity, quality, superiority and progress. To maintain leadership you must protect your good name.

When Anemostat Air Diffusers are in sight the system is right. This was true yesterday, is true today and will be true tomorrow.

ANEMOSTAT®

DRAFTLESS Aspirating AIR DIFFUSERS

ANEMOSTAT CORPORATION OF AMERICA

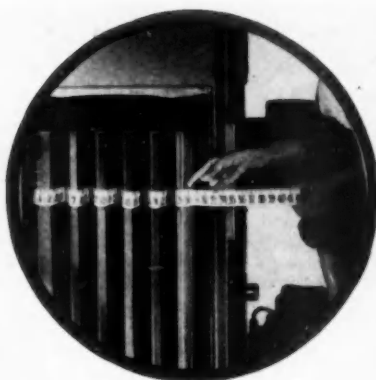
10 EAST 39th STREET, NEW YORK 16, N. Y.

REPRESENTATIVES IN PRINCIPAL CITIES

"No Air Conditioning System Is Better Than Its Air Distribution"



Heat Exchanger is only 17" straight across the face.



See how the tape follows the deep corrugations in the Exchanger.

42% MORE

**HEATING AREA FROM
THE SAME FLOOR SPACE**



Actual heat transfer surface measures 30" wide on 3 sides.

WINKLER *Universal*

OIL AND GAS-FIRED FURNACES

UP-FLOW AND COUNTER-FLOW MODELS



You've never seen a more complete heating "package" than the Winkler Universal Winter Air Conditioner! Compactly and scientifically designed for more comfortable, more economical home heating. Everything included except ducts...for homes with or without basements. Easy to switch from one fuel to another.

Note particularly the Heat Exchanger. Its corrugated design nearly doubles the heat dissipating area...minimizes heat waste up the chimney. This design also permits expansion and contraction without noise.

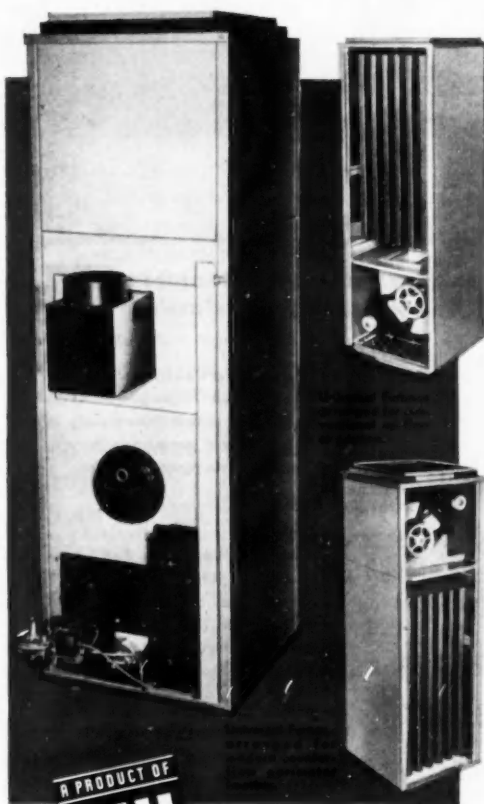
The fan carries all moving parts in soft rubber for quiet, vibrationless operation. Note, too, that the filter frame can be installed in any of the five sides adjacent to the fan compartment—means less duct work and less labor.

Both Gas and Oil Burner Kits are pre-wired for quick connection to the pre-wired furnace—another labor-saving feature.

DISTRICT MANAGERS . . . DEALERS . . . DEALER'S SALESMEN WANTED!

This is your opportunity to join a successful organization with an amazing growth record. Winkler gives you complete instruction in successful selling and business management methods at the Winkler Training Institute—a school where dealers and their personnel are shown how to turn Winkler products into *profits*!

Write today for information on how to obtain a Winkler territory or Franchise.



STEWART-WARNER CORPORATION
U. S. MACHINE DIVISION • Dept. A-123 • LEBANON, IND.



it costs no more to give your customers

Lima Quality



stock the LIMA line Now while inventories are low

It's **better business** to give your customers the better quality construction and more efficient performance of Lima diffusers, registers and grilles for heating or cooling... new house or remodeling... perimeter or conventional systems.

Remember, Lima costs no more. So right now — while inventories are low — is a good time to stock the Lima line and make sure your customers get the quality they're already paying for. Phone, wire or write for new catalog and prices.

Exclusive Lima Features For Lasting Satisfaction



Lima offers extra sturdy construction throughout, with flawless resistance-welding to join parts permanently into solid "one-piece" rigidity.



Lima's "Balancing Bell" control simplifies balancing and eliminates quadrant dampers. The rich Lima finish harmonizes with any interior.

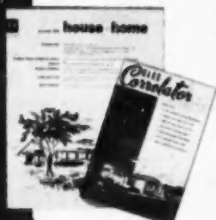
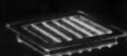
For proper air distribution, Lima Diffusers and Registers permit quick, accurate adjustment of the air diffusion pattern for peak efficiency.

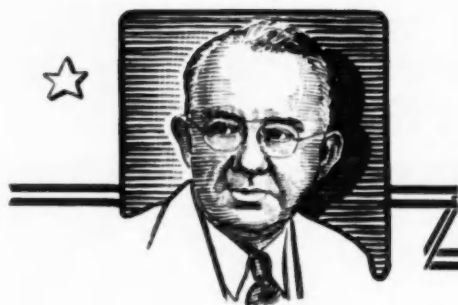
nationally advertised MEMBER
to architects and builders



register company

sold exclusively through heating wholesalers and manufacturers





Arnold Kruckman's Washington Letter

Building, Other Business "Better than Expected"

LATEST WASHINGTON business predictions report conditions "much better than expected," and commodity and financial markets as well as building contract awards and steel "stronger than ever."

Reports on the construction industry indicate new projects coming forward at a high rate. For the month of September, dollar value of total contract awards was 15 per cent below September, 1952, due to large Atomic Energy Commission contracts a year ago; excluding these, awards were 28 per cent higher than last year. Residential contracts were off 2 per cent, and all other than residential up 54 per cent. Actual housing starts in September were, in number, still at an annual rate of close to one million, even though moderately below last year for the third consecutive month.

For the first two weeks of October, contract awards showed gains over a year ago both in the residential category and in the total. One important factor sustaining building is the spurt in commercial building, particularly large office structures held back by restrictions imposed during the Korean War.

The U. S. Dept. of Labor and U. S. Dept. of Commerce report expenditures of \$3.2 billion for new construction during October, 1953. This almost maintained the September level and set a record for the month; private outlays of \$2.1 billion and public outlays of \$1.1 billion were both at a peak for the month. Commercial, educational, and religious building each rose contra-seasonally in October to a new monthly high.

In the future, according to government sources, greater stress will be placed on defense plants construction in areas where a labor surplus exists or threatens. Availability of manpower has been one of the criteria used in the granting of rapid tax amortization applications. But new emphasis is to be placed on the labor aspect. "Chronic labor surplus" is to be certified where the condition prevails. A higher percentage of capital investment covered will be allowed if the proposed plants or facili-

ties are to be established or expanded in such areas.

Non-farm housing starts declined in the last month as compared with last year, although still approximating more than one million per year. If comparable data were available for farm housing, the combined total would probably be 10 per cent larger than the non-farm figure, according to sources here.

Housing Reflects High Living Standard

Economic researchers state we have been building houses in this country for 350 years and yet, of all the houses standing today, one out of six have been built since World War II ended — in the short span of eight years. The tremendous housing boom has reflected the basic improvement in the American standard of living, resulting from our high productivity as well as the great increase in the number of persons to be housed growing out of our rapid population increase. In 1940, there were 132 million people in this country and 37 million dwelling units. Today there are 158 million people living in 48 million houses and apartments. The average number in each dwelling unit has declined. Even more important is the great improvement in the quality of housing; today's house is more and more a "living machine."

One overall statistic is of particular importance in measuring the improving standard of life as it pertains to housing. In 1950 there were 8,360,000 more home owners than in 1940, a 55 per cent gain. In addition to this, in 1940 there were electric lights in 79 per cent, in 1950, 94 per cent; exclusive flush toilets inside the house in 1940, 60 per cent, 1950, 71 per cent; exclusive use of bath tub or shower in 1940, 56 per cent, 1950, 69 per cent; central heating in 1940, 42 per cent, 1950, 50 per cent; mechanical refrigerator, 1940, 44 per cent, 1950, 80 per cent.

There no doubt will be an increase in expenditures for alterations, repairs and maintenance of existing buildings in the immediate future. Such "fix-up" spending



Washington Letter

is probably running around \$6 billion to \$7 billion annually. Many two bedroom houses built in recent years are being outgrown. The Federal Reserve System estimates that in 1952 some 4 million home owners each spent \$500 on their houses. In 1952, property improvement loans represented 20 per cent of the amount of insurance written by FHA under all its programs. The average property improvement loan amounted to \$400.

New Steel Orders High

Impressive evidence of good business conditions also comes from the steel industry. Operations have been holding firmly around 95 per cent, with no signs of waning, according to Washington reports. Cancellations are tapering off. Chairman Benjamin F. Fairless, of the U. S. Steel Corp., went on record with the opinion that operations in the industry as a whole will vary not more than 1 or 2 per cent from the present near-capacity levels during the balance of the fourth quarter. He said: "I'm optimistic for 1954, too. New orders are running at a good rate, although below the feverish pace of the last few years when we were receiving orders well over our ability to produce. New orders are currently nearly in balance with outbound shipments." Steel scrap prices are rising again.

It is reported that one reason for good conditions was the continued fast pace of automobile production, which continued to defy predictions of market saturation. Output of passenger cars in October was around 530,000, about the average for the first nine months and 12 per cent greater than in October 1952. With production of passenger cars and trucks during the first nine months numbering 5,772,000 vehicles, it now appears the combined output of passenger cars and trucks this year may well be within 10 per cent of the record total of 8 million turned out in 1950.

SBA Administrator Resigns

The former administrator of the Small Business Administration, William D. Mitchell, made a visit to the White House on October 30. It followed a reputedly "knotty" session he had with the loan policy committee of the Small Business Administration, consisting of Secretary of Commerce Weeks, Secretary of the Treasury Humphrey and Mr. Mitchell. Mr. Mitchell's visit followed various conferences he had with different members of Congress, particularly members of the Senate and the House small business committees.

It has been no secret that the members of Congress had not been satisfied with the policy of the Small

Business Administration in regard to making loans. Many observers here feel that SBA's original "conservatism" placed Mr. Mitchell in the position where he was unpopular with the small business men, unpopular with the members of the Senate and the House, unpopular with his lending committee and in a difficult situation with the President. This led to his visit and he left the White House on that day having placed his resignation in the hands of the President.

In his letter of resignation, Mr. Mitchell stated to President Eisenhower, "I deeply regret that, due to personal reasons, I find that I must resign as administrator of the Small Business Administration." Many congressmen who commented on the resignation pointed out that seldom are resignations attributed purely to personal reasons without giving specific causes.

SBA Liberalizes Loan Policy

On November 16, SBA issued a revised loan policy statement. The new policy, as explained by Senator Thye, chairman of the Senate's small business committee, makes it possible for retailers and wholesalers, as well as manufacturers, to apply for loans. In addition, the former provision giving preference to loans which foster "military, defense or essential civilian requirements" has been eliminated. A third important change is that a loan may be granted without the SBA's requiring proof that "credit is not available locally," as had been stated in the Small Business Act of 1953.

As of November 16, two loans, totaling \$78,000, had been made, with 16 other applications, amounting to \$771,278, pending. As of November 20, four business loans, totaling \$118,000, had been authorized.

The comment of the Senate small business committee, immediately after Mr. Mitchell's resignation, was this: "SBA's lending policy, which is fixed by a board composed of the SBA administrator, the Secretary of the Treasury and the Secretary of Commerce, has been under fire from many directions. The agency has yet to approve its first loan, although the legislation authorizing its lending function was signed by the President on July 31." (It should be pointed out that the July 31 legislation did not go into effect until September 29. Therefore, a month and a half elapsed between SBA's being in the "loan business" and granting its first application. This compares favorably with the time interval of about 90 days for the processing of the average RFC loan.)

The committee continued, "Criticism has been aimed at SBA's program of encouraging the establishment of privately-financed 'credit pools' throughout the coun-

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* Pat. Pend.



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WASHINGTON LETTER —

try, while at the same time making the requirements for small business to obtain an SBA loan so rigid that almost no company could find it possible to qualify."

"Wendell B. Barnes, general counsel and acting administrator of SBA, recently presented a speech before a group of bankers at Passaic, N. J.

"In reply to reports that SBA might de-emphasize its efforts to stimulate formation of private credit pools, Mr. Barnes said that such efforts might continue, although they would have to take on the aspect of 'fairly long-range projects.'"

Senator Andrew F. Schoepel, chairman of the subcommittee on monopoly of the Senate small business committee, made a ringing speech recently in favor of a more vital lending program for small business in various western cities. He explained to his listeners that he entirely subscribed to the view that independent business men are entitled to the opportunity to initiate and develop business through government loans without being subjected to unfair or discriminatory practices. Senator Schoepel came out forcefully in favor of easier lending practices by SBA. At the same time, he deplored the extent to which various agencies of government compete with private enterprise, showing how government is one of the largest manufacturers of ice cream (with 162 factories), is engaged in the telephone business, in tugboat operations, in coffee roasting, and in operating

warehouses on a large scale. Senator Schoepel hammered home that he wants to "get the government out of business and back into government business." Senator Lyndon B. Johnson also has attacked the "lack of cooperation in this government" for the small business man.

Stresses Importance of Small Business

Chairman Edward F. Howrey, Federal Trade Commission, recently said that the primary objective of his commission in the future will be to preserve effective and vigorous competition, particularly by stimulating strong and aggressive small business competition. He says small business, in terms of the FTC, must be protected from unfair competition. He wants the small firms to grow to be able to compete effectively with their bigger competitors.

"It is startling to realize the dynamic and important position occupied by small business today," said Chairman Howrey. "While we hear much about big business, the truth is that the typical unit in the United States is small. Nine out of every ten business concerns engaged in manufacturing operations are small concerns. They employ more than half of all persons engaged in manufacturing, and they account for more than one-third of total output."

Mr. Howrey referred to a report by one of the largest automobile manufacturers that 58 per cent of the total price of an automobile represents more than 10,000 purchased parts and that such parts are obtained from

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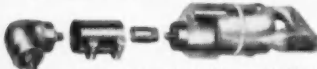
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1 1/2"	\$ 7.90
2 1/4"	9.20
2-9/16"	11.70

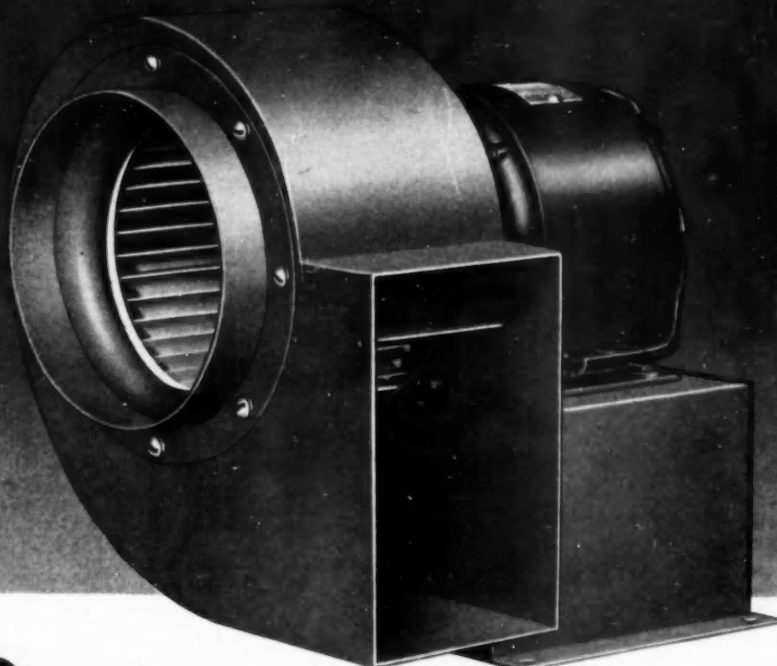


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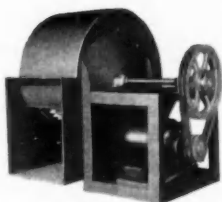
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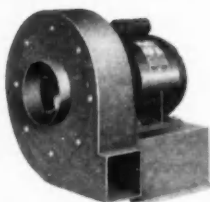
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- inner hot stack carries off vent gases without condensation
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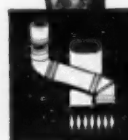
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WASHINGTON LETTER —

more than 7000 different suppliers. He also quoted one of our largest steel companies as saying that 40 per cent of its total revenue is paid out to 54,000 suppliers of goods and services, and that at least 50,000 of these suppliers are small business concerns.

"The majority of new ideas, new methods and inventions originate with small business," Mr. Howrey said. "Of all the patents issued by the United States Patent Office during a 17 year period, approximately 77 per cent went to individuals and small and medium-sized businesses."

He continued by pointing out that if the corporations doing business in 1949 were divided into two groups—those with assets of more than \$250,000 and those with assets of less than \$250,000—the smaller would contain about 90 per cent of the retailers in the United States and 80 per cent of the wholesalers. Mr. Howrey considered this an "understatement," because the figures do not take into account sole proprietorships and partnerships, which are particularly important in distribution.

Management Tools for Defense Department

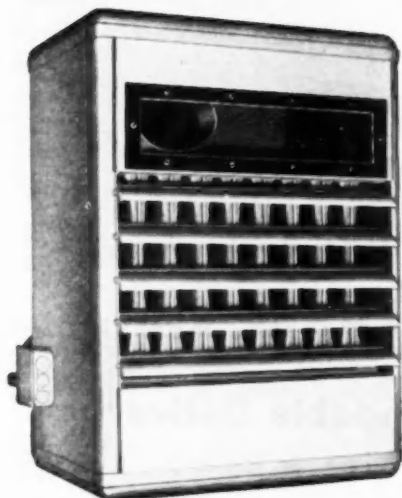
Assistant Secretary of Defense W. J. McNeil recently posed the question, "Why hasn't the Department of Defense managed its business so as to create the higher degree of confidence required to help insure the continued support of all the people?" His answer was, "We have not developed the organization and the machinery to provide our commanders and managers with complete, concise, valid information with which they may make sound decisions. In the automobile industry, for example, the manager can measure every 10 days public acceptance of his product as compared with that of his competitors. And he can periodically determine profit and loss to show whether he is successful in efficiently managing the business."

"But we in the military establishment do not have these management tools upon which successful business relies, — nor have we adequate substitutes. However, organization, together with procedures and methods, can be developed and adopted to fill this need."

Mr. McNeil pointed out that Congress provided authority to achieve improved business management of defense activities (under the National Security Act Amendment of 1949). However, he feels full advantage has not been taken of the opportunity to modernize and improve defense business practices and methods — although considerable progress is under way.

"Progress has been made by the three military departments and the department as a whole in improving the budget process, but much remains to be done," he said. The department is now authorized to operate commercial and industrial-type activities on a corporate or business basis, and to eliminate what Mr. McNeil terms "the former archaic and impractical annual appropriation financing method."

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Moncrief Unit Heaters are distinctive with such desirable features as:

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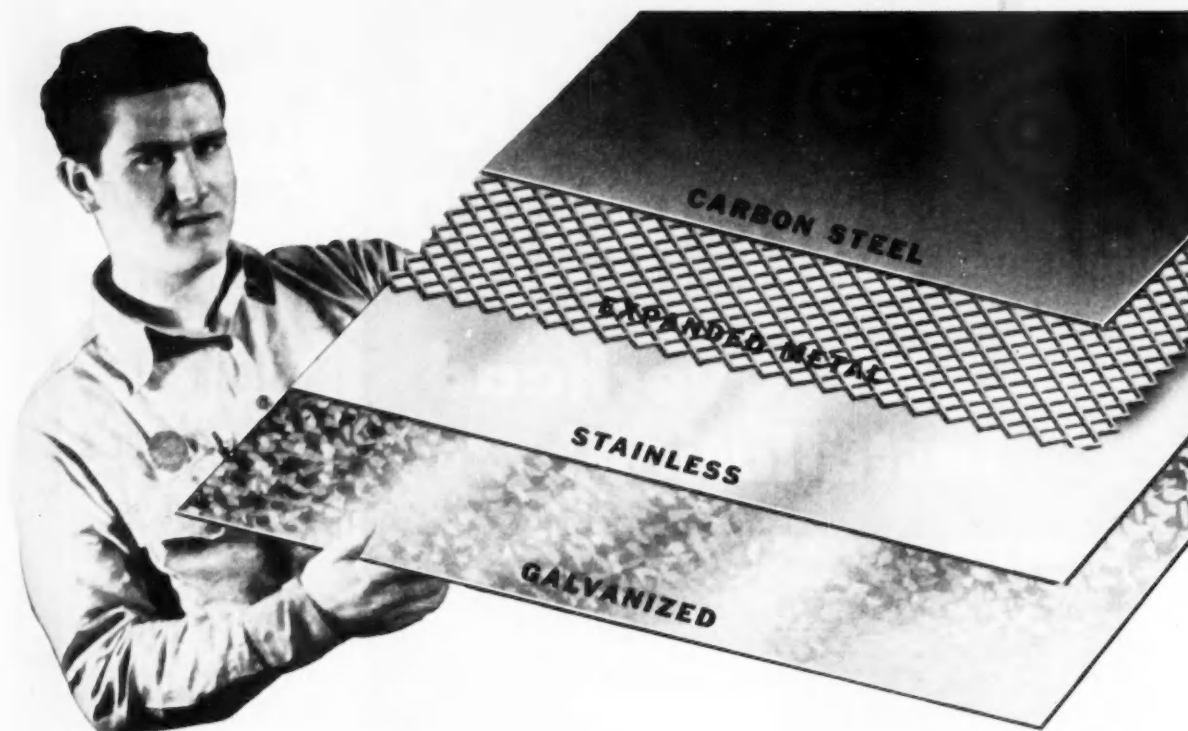
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Residential Cooling Is Our Job

IT WAS INTERESTING to us to note that about half of the firms exhibiting at the Refrigeration and Air Conditioning Exposition last month had some form of air conditioning equipment to show. Many of the products were being offered for the first time — some were redesigned models, and some manufacturers had only hand-made samples of the equipment that will be available for the 1954 residential cooling season.

The theme of most of the conversation seemed to be residential air conditioning. There were various solutions suggested for air conditioning homes — some felt that cooling units in every room were the answer, others that package units located in several strategic spots would do the best job, but the majority seemed to feel that warm air heating ducts would be the most generally used method of cool air distribution.

We talked to a number of the refrigeration contractors — large and small, and from big cities and small ones — to find out how they felt about the selling and installing of residential cooling equipment. Most of them indicated they wanted to be in on the sale, if possible, but admitted that the dealer who had installed the winter warm air heating or air conditioning system had the inside track — because the home owner had relied upon him to provide winter comfort and would naturally turn to the warm air heating dealer for summer cooling.

It seemed well understood, too, that the warm air heating industry knows the sizing of ducts and the problems of air distribution — and that these are among the most important factors in summer air conditioning.

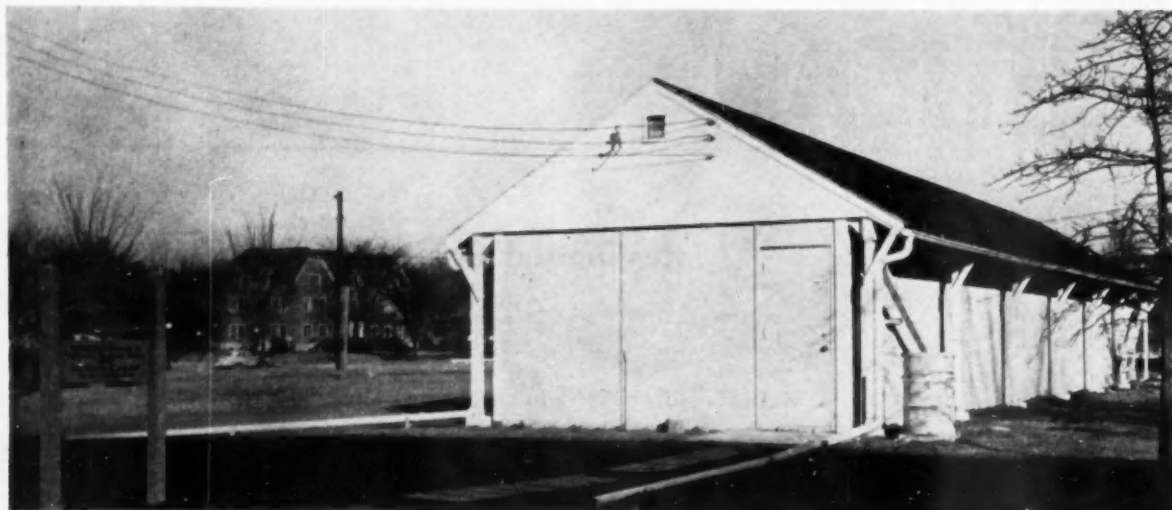
Some of the refrigeration contractors felt that residential air conditioning may develop along the lines of the warm air heating dealer selling and making the installation and turning some of the servicing of the refrigeration units over to refrigeration service companies.

All of the men we talked to indicated that more refrigeration service men must be trained to meet the needs of the rapidly growing residential field. None seemed to have the answer as to the best way to train the men needed for the work that will be increasing steadily for years to come. As some of them pointed out, the residential use of air conditioning isn't the only part of the air conditioning industry that is growing — store, office, factory and automobile installations also are showing steady increases year after year.

There will undoubtedly be many developments in residential air conditioning, and various solutions to the problems it presents. However, the commanding position of the warm air heating dealer in the expanding field of residential summer air conditioning becomes clearer almost every day.



*American Artisan's editors,
staff and authors wish you
all a Merry Christmas and
a Happy New Year*

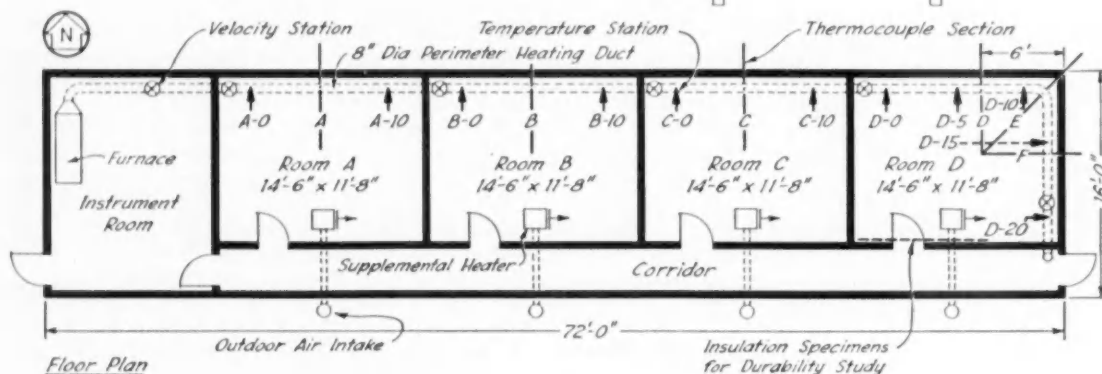
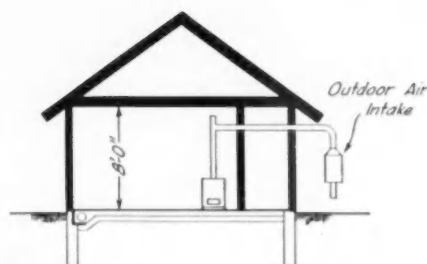


1 THIS LABORATORY was built at the University of Illinois . . .

Design Heat Losses, Btu per hr ($t_o = -10^\circ\text{F}$)

Room	Exterior Wall ($U=0.16$)	Ceiling ($U=0.10$)	Ventilation Air	Total
A, B, & C	1490	170	2300	3960
D	2690	170	2300	5160

Partition Walls: U (Above Grade) = 0.05
 U (Below Grade) = 0.08



2 AND MODIFIED by the introduction of an 8 in. perimeter duct along the north wall in order to . . .

Test Performance of Heated Floor Slab

. . . under varying conditions of duct air temperature and velocity. Also compared were heat emission from bare and carpeted floors and temperature patterns produced by perimeter and feeder ducts

By S. Konzo
 University of Illinois

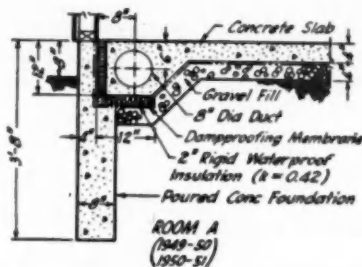
UP TO THIS point in the discussion of warm air perimeter heating, results have been presented of the studies in Research Residence No. 3. Such studies were particularly adapted to the determination of the overall performance of the heating plant. For example, the temperature differential from floor to ceiling can best be determined in an actual residence subjected to a wide range of weather conditions. Similarly, the studies of fuel consumption for any given type of heating system require that they be made in an actual residence.

On the other hand, many of the component parts that make up a heating system cannot be fully investigated in a residence installation, since a change in some one item such as duct air velocity may affect the operation of the entire plant. When the time came to consider the various factors that affected the heat emission from a floor slab, below which ran an embedded duct, the decision was made to conduct such studies in a special laboratory.

Outfitting the Laboratory

The Floor Slab Laboratory was built in 1947 at the University of Illinois for the purpose of studying methods of insulating unheated concrete floor slabs. This laboratory, shown in Fig. 1, consisted of four experimental rooms in a special structure that was exposed to natural weather conditions. The original work on unheated floor slabs, conducted by Bareither, Alberty, and Fleming (American Artisan, Vol. 37, No. 3, March 1950), indicated that edge insulation of the floor slab was necessary to reduce heat losses at the edge of the slab, and that either vertical or L shaped insulation would be satisfactory.

In 1949 the laboratory was modified by running an 8 in. diameter perimeter duct along the north wall, as shown in Fig. 2. Four types of edge construction were used (and will be compared as to effectiveness in a subsequent article). The construction used in the studies treated here is shown in Fig. 3. Complete instrumentation, including about 600



3 THE EDGE construction used in the tests described is one of four types in the laboratory

thermocouples and 15 heat meters, was installed for the purpose of determining the temperatures at all parts of the slab and the ground as well as the heat flow from the slab to the ground and the outdoors. The laboratory was heated by means of electricity so that exact measurements of the heat input to the rooms could be readily made. Except for the fact that the air was heated electrically, the air ducts and slab construction were the same as those of any warm air heating system.

Perimeter Duct Effective

In the early studies with an unheated floor slab, it was noted that the temperature of the floor surface decreased as measurements were made closer to the exposed wall. The broken line in Fig. 4 shows that at a distance of 8 in. from the wall, the floor surface temperature was about 64 F when the outdoor temperature was only 26 F. When the 8 in. diameter perimeter duct was embedded in the floor slab and warm air was passed through the duct, a marked change took place in the floor surface temperatures, as shown by the three solid line curves in Fig. 4. The following observations were made:

The warmest part of the entire floor surface was immediately above the perimeter duct. At a distance of 6 ft from the exposed wall the surface temperature was about 68.5 F, whereas at a distance of 8 in. from the wall the temperatures were over 85 F.

In the case of the unheated floor slab, a space of about 2 ft from the exposed wall was a cool floor area, even with the use of 2 in. thick edge insulation. When a perimeter warm air duct was placed under the slab floor, however, the warmest part of the floor was now located near the exposed wall. That is, the cold floor

How We Got Where We Are In WARM AIR PERIMETER HEATING

the 12th in a series planned to tell about:

► Investigations in the Research Residences at the University of Illinois

► Design and installation data (condensed from manuals published by the National Warm Air Heating and Air Conditioning Association)

► Specific phases of warm air heating

... in articles so far:

► heating basementless homes

► warm air ceiling panels

► heating slab floor homes with ceiling and floor panel systems

► floor panel-convection heating for slab floor homes — partially open and completely open

► survey of field practices

► new research residence built

► comparison of two loop perimeter and three convection systems

► comparison of perimeter loop and two loop system

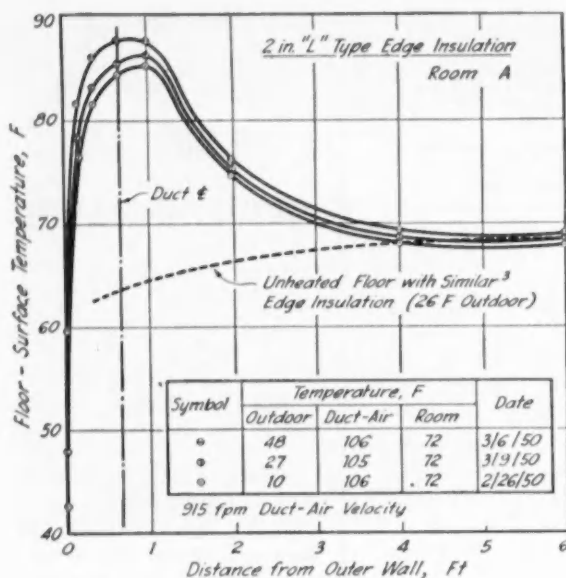
► loop vs. radial system

► perimeter laboratory studies

... in articles to come:

► more on perimeter laboratory studies

► crawl space heating



4 WITH AN UNHEATED floor slab, surface temperatures decreased as measurements were made closer to the wall. Solid lines show change in pattern after the perimeter duct was installed

zone of the unheated floor slab could be effectively eliminated by the perimeter duct.

As the outdoor temperature dropped from 48 F to 10 F, only a slight change in floor surface temperature was observed. These results were obtained with a constant duct air temperature of 106 F. In an actual residence even this slight reduction would not occur, since the increased heat demand in cooler weather would automatically bring about an increase in duct air temperature.

Studies with an unheated floor slab showed that edge insulation increased the temperature of the floor surface next to the exposed wall but did not increase it in the middle of the room. A similar trend is shown in Fig. 4; that is, 4 ft away from the exposed wall the effect of the perimeter duct is practically negligible.

Vary Conditions in Duct

A study was next conducted with duct air temperatures higher than that used for the studies referred to in Fig. 4, but with the duct air velocity maintained constant at 600 fpm. The results are shown in Fig. 5, and the following observations were made:

The lower curve of floor surface temperatures was for an air temperature in the duct of 106 F; the middle curve was for 134 F duct air temperature; and the upper curve was for 157 F. The general shape of the curves was the same in

all three cases. In other words, the warmest part of the floor was that portion immediately above the embedded ducts.

When the duct air temperature was increased by 51 F, the surface temperature of the floor immediately above the duct increased by 21 F, or about 40 per cent of the duct air temperature increase.

That portion of the floor which is within 3 ft of the exposed wall is warmed by the perimeter duct.

No great merit exists in having duct air temperatures greater than about 110 F, since with higher duct air temperatures the edge loss is increased.

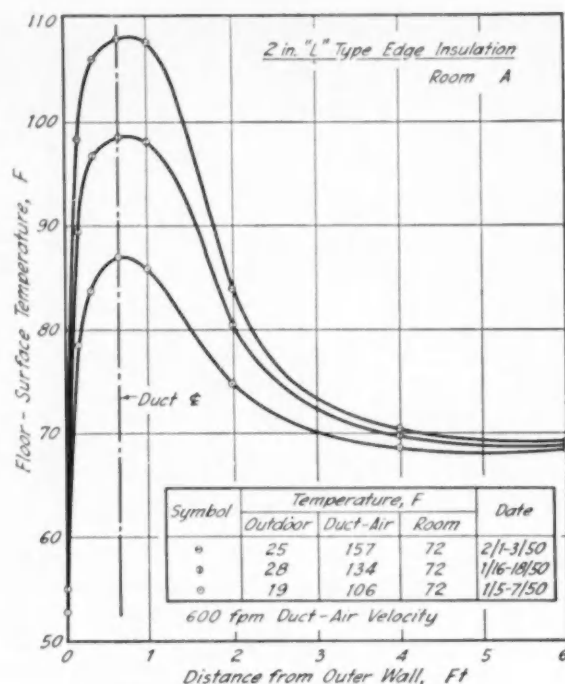
A study was also made of the effect of air velocities in the duct. For a duct air temperature of 106 F, the following relationships were found:

Duct Air Velocity (fpm)	Floor Surface Temp. over Center of Duct (F)
915	88.5
600	87
375	85
150	81

In other words, higher velocities of the duct air resulted in warmer floor surfaces.

Floor Emits More Heat

When the floor is heated by means of a perimeter duct, the floor surface



5 IN TESTING the effects of three different duct air temperatures, it was found that with temperatures above 110 F, edge loss increased

is at a higher temperature than the surrounding surfaces and the room air. Hence, heat will be transmitted from the floor surfaces to both the surroundings and the room air. An extensive study was made of this heat transfer process, and the following observations were made:

When the duct air temperature is increased, not only is the floor surface temperature increased (Fig. 5), but so also is the rate of heat transfer from the surface to the surroundings. For example, at a constant duct air velocity of 600 fpm, the following heat emission rates were obtained over the center of the embedded duct:

Duct Air Temp. (F)	Total Heat Emission (Btu/hr/sq ft of floor)
110	17.5
120	28
130	40
140	51
150	62

In other words, as the duct air temperature is increased, the panel heating effect of the floor surface becomes larger.

When the duct air velocity is increased, more heat is transmitted from the duct air to the floor surface, and therefore, a higher emission rate occurs at the floor surface.

The use of a 2 in. thick edge insulation did not materially increase the heat trans-

fer from the floor surface to the surrounding room air and room surfaces, as compared with the results obtained with lesser thicknesses of edge insulation. However, as will be indicated later, effective edge insulation materially reduced the heat loss from the edge of the slab to the outdoors.

The data shown in Figs. 4 and 5 as well as the discussion up to this point were all related to bare concrete floors. A separate study was made of the effect of applying a carpet over the floor, and the heat emission curves are shown in Fig. 6. A $\frac{3}{8}$ in. thick wool carpet was placed over a $\frac{3}{8}$ in. thick jute pad. The application of the carpet caused a marked decrease in the rate of heat emission from the heated floor near the duct and little difference in downward heat flow in the center section of the room.

The net rate of heat emission of the bare concrete floor, as represented by the area under the curves in Fig. 6, was 37 Btu per hr for each lineal foot of wall exposure, whereas the rate for the carpeted floor was 21 Btu per hr per lineal foot. For a constant duct air velocity and temperature, therefore, the application of a carpet and pad reduced the heat emission about 45 per cent.

While this percentage reduction in heat emission was large, heat delivery to the room of a residence equipped with a perimeter heating system would not be seriously affected. Only a part of the total heat is emitted through the floor surface and into the room, the rest being delivered from the registers. In fact, the system is self balancing, since any reduction in heat emission from the floor surface would be partly compensated by an increase in register heat delivery.

One item which affects the comfort of the occupant, and which cannot be readily measured, is the coolness of the floor surface as sensed by the soles of the feet. Shoe soles which are in contact with a bare concrete floor, or a floor covering of asphalt tile, will transmit heat more readily from the feet to the floor than will shoes in contact with a carpet. Under such conditions it might be expected that a warmer concrete surface is necessary to pro-

vide the same sensation of warmth as a carpeted floor.

Effect of Feeder Ducts

Feeder ducts are used to connect the subfloor plenum, located below the furnace, and the perimeter duct. Whenever possible the feeder ducts are connected to the perimeter ducts at the corners of the building. Since the feeder ducts are not adjacent to the cold outer walls, the heat emission characteristics differ from those of the perimeter duct. For the purpose of these studies a feeder duct was provided in Room D of the Floor Slab Laboratory, with a slope of 1 in. per 5 ft of run. The 3 in. diameter feeder duct was connected to the perimeter duct by means of a tee-connection and two 45 deg elbows, as shown in Fig. 7(a). The thickness of the concrete over the feeder duct was about 5 in. at the subfloor plenum and about 2 in. at the tee connection with the perimeter duct. A typical pattern of floor surface temperatures is shown in Fig. 7(b), and the following observations were made:

A practically constant pattern of floor surface temperatures existed for a length of duct of about 10 ft. As shown in Fig. 7(b), the maximum temperature existed over the center of the duct, and for distances of 2 ft on each side of the center the floor surface was warmed. It is apparent that the floor surface near the feeder duct can serve as a panel heating surface.

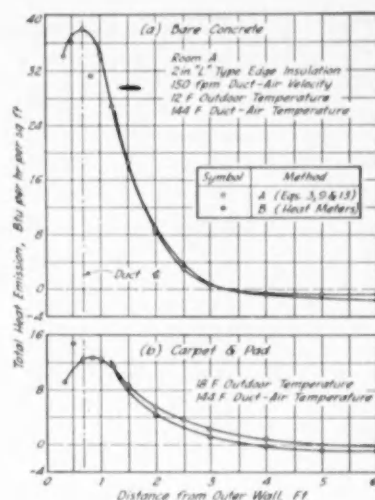
The maximum surface temperature was obtained at the corner of the building over the tee connection, as shown in Fig. 7(a). In the case of an unheated floor slab, or in the cases where the feeder duct is not carried to the corner of the building, this exposed corner is usually the location of the coldest floor surface.

A floor surface temperature of 85 F over the center of the duct was observed along the entire length when the entering duct air temperature was 115 F and the duct air velocity was 500 fpm.

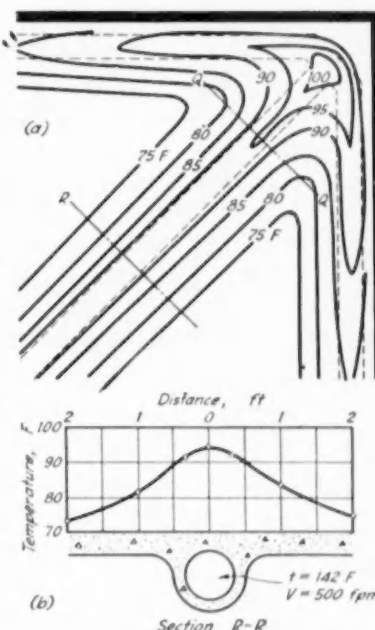
The rate of heat emission from the heated floor to the room varied from 35 to 110 Btu per hr for each lineal foot of feeder duct, depending primarily upon the duct air temperature. For the same duct air temperature and duct air velocity, the rate of heat emission from the floor was about 70 per cent greater than that for the perimeter duct.

A further discussion of the findings in the Floor Slab Laboratory will be given in the next issue.

[Parts of this article are abstracted from the complete report, Heat Emission Char-

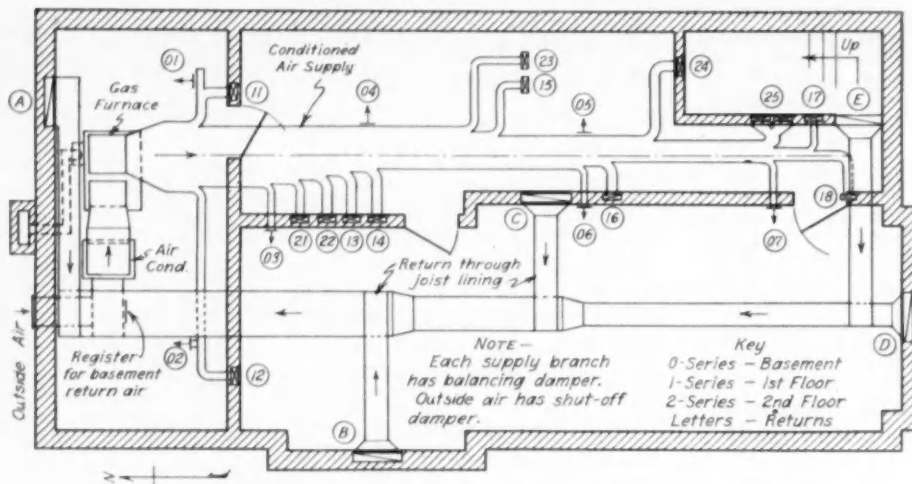


6 THOUGH USE of a carpet and pad reduced heat emission about 45 per cent, heat delivery was not seriously affected since the system was self balancing

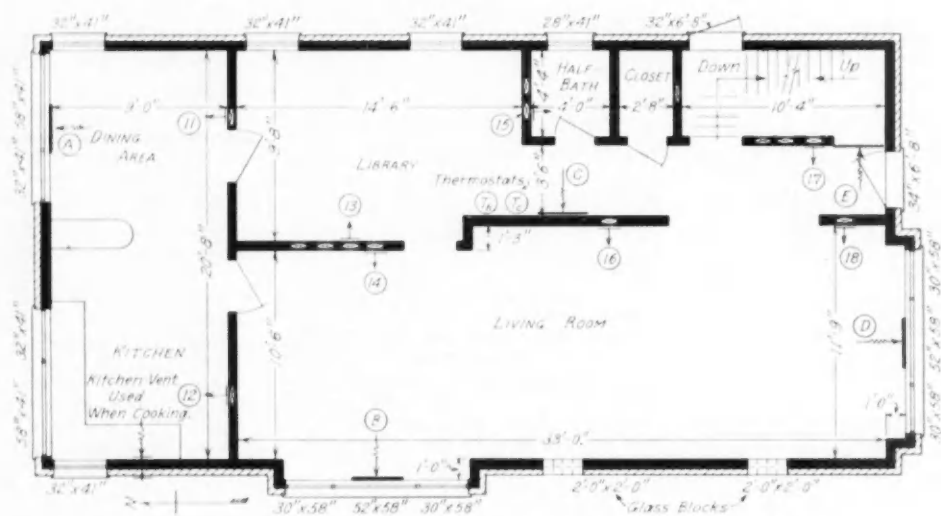


7 MAXIMUM SURFACE temperature was obtained at the corner over the tee connection joining the feeder duct and the perimeter duct (a). For distances of 2 ft on each side of the center of the feeder duct, the floor surface was warmed (b)

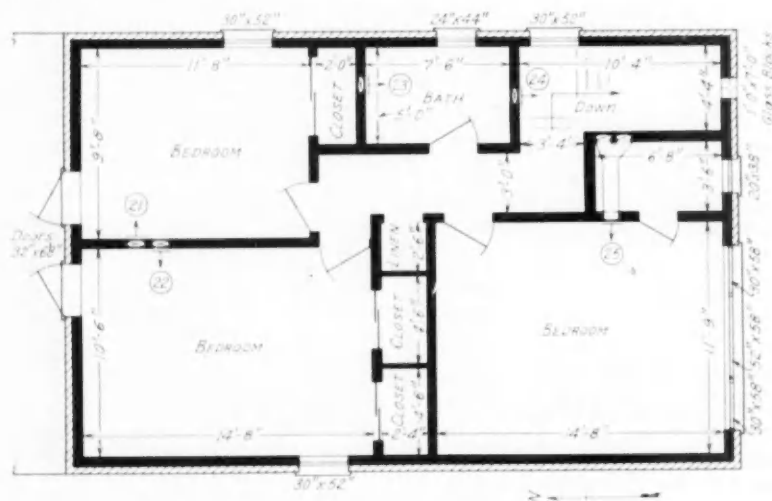
acteristics of Warm Air Perimeter Heating Ducts, by J. R. Jamieson, R. W. Roose, H. T. Gilkey, and S. Konzo, University of Illinois Engineering Experiment Station Bulletin 412.]



1 THE FINAL SCALE layout (shown here on the basement plan) can be made after the supply and return systems have been sized . . .



2 FOR THE FIRST FLOOR rooms (where a special problem is the large window area in the living room) . . .



3 AND THE SECOND FLOOR (which uses no return grilles)

How to Design a Duct System for a Two Story Home

... using NWAHACA Manuals 7 and 11.
**The author describes the location of registers,
grilles and risers, and the roughing in, sizing
and final layout of the distribution system**

By S. W. Reid

**Air Conditioning Engineer
Gilbert Associates, Inc.**

LAST MONTH we undertook the design of a year 'round air conditioning system for a two story residence located in an urban Chicago neighborhood. The procedure for determining the heating and cooling loads was covered in some detail as was the matter of equipment selection. This month we shall complete the design by laying out the duct and distribution system.

Not too long ago the problem of residential duct system design was approached in the same way that commercial and industrial duct design problems are handled today. The designer had to use basic information, choosing velocities, shapes and details in accordance with his own experience. Because there were no established residential standards, he lacked a yardstick by which to gage his work. The result was that in a good many early installations, there was much room for improvement.

Residential duct systems today may still be designed from basic information, as are larger systems. However, the highly competitive nature of the market in recent years has compelled the industry to simplify the time consuming procedures of the custom design and to seek wider public acceptance by the establishment of standards of design and quality of workmanship. A good part of this work has been done under the sponsorship of the

National Warm Air Heating and Air Conditioning Association (NWAHACA) and is published in its Manual 7, Design and Installation of Warm Air Winter Air Conditioning Systems, and Manual 11 (tentative), Design and Installation of Summer Air Conditioning for New and Existing Residences. The simplified methods of Manual 7 are applicable to homes having heat losses not greater than about 120,000 Btu per hr. For buildings of greater heat loss, the association's recommendations are given in Manual 9. Manual 11 applies to homes which require 5 tons of cooling or less.

The use of Manuals 7 and 11 results in economies to the dealer for at least three reasons. First of all, because the methods emphasize choice (in duct sizing) rather than calculation, less skill is required to arrive at a successful design. Second, because size selections are limited to a few standard sizes, less time is required in making a choice. Third, because standard components are used, they may be prefabricated and stocked. The economies far outweigh what might seem to be inefficiencies in certain runs which handle less than their maximum allowable capacities. Since the heating and cooling loads for our sample house fall within the scope and limitations of Manuals 7 and 11, these methods were followed in laying out the duct system insofar as was possible.

Air Conditioning Fundamentals

This is the 15th in a planned series of articles devoted to the fundamentals of air conditioning systems for summer and winter, and providing specific information on all the component parts. Special emphasis is placed on how to adapt cooling to warm air heating systems.

Articles So Far:

1. The terms used in the air conditioning field, i.e., air properties, comfort conditions, etc. (September, 1952 issue).
2. The parts of the refrigeration system and how they work (October, 1952 issue).
3. How to estimate cooling loads (November, 1952 issue).
4. How to achieve proper air stream patterns in the conditioned space (December, 1952 issue).
5. Duct design — comparison between sizing for summer and winter (January, 1953 issue).
6. Condensing units (February issue).
7. Fans, fan motors and fan speeds (March issue).
8. Filters—throwaway, cleanable, electronic (April issue).
9. Condensers and water regulating valves (May issue).
10. Cooling towers and evaporative condensers (June issue).
11. Equipment selection (July issue).
12. Electrical control systems (August issue).
13. Electric controls (September issue).
14. Sample problem — estimating cooling load and selecting equipment (November issue and this issue).

Future Articles:

1. Second sample problem, using different building and conditions.
2. Trouble shooting — detecting malfunctioning of summer air conditioning equipment (two articles).
3. Replacement procedures for defective parts in cooling equipment (two articles).

The purpose of a duct system is to convey conditioned air between the centrally located conditioning equipment and the spaces to be conditioned. In laying out the system, the objective should be to provide the most direct route possible consistent with appearance and space limitations.

Locating Registers and Grilles

Having made the load calculations for each room, the next step is to study the house plans for possible supply register and return grille locations. In our sample problem, conventional high sidewall register locations are used.

Inspection of the floor plans, Figs. 1, 2, and 3, reveals that interior partitions on the second floor are, for the most part, directly above corresponding partitions on the first floor. This will make the running of risers from the basement to the second floor a comparatively simple matter.

Considering now the living room as shown on Fig. 2, we notice two large windows. These will be the source of substantial heat flow both summer and winter. We should, therefore, locate registers so that the conditioned air supply will be directed against these critical areas. Accordingly, we choose locations 14 and 18. Since the living room is a long room, it may not be possible to handle the entire load with only two supply registers of standard size. Even should this be possible, a third register at location 16 will improve distribution and make unnecessary a widely deflected throw from registers 14 and 18.

Large window areas, especially those containing single glass (storm windows or double glass were not used in this example), can cause uncomfortable down drafts of cool air in the winter with the high sidewall distribution system we have chosen unless the cool air is prevented from rolling across the floor. The problem is minimized by locating return grilles in the baseboard beneath each window, as indicated at B and D.

The kitchen-dining room is long and narrow like the living room. It also has two large glass areas. Air

from register locations 11 and 12 will be directed toward each of these high load areas. In order to minimize cold down drafts in the dining section where people will be seated, a return grille is located in the north baseboard beneath the window at A, as shown.

The library is a relatively small room having only one exposed wall and comparatively small glass areas. Conditioned air will be supplied from location 13. Air will return through grille C, which is located in the hall.

Two other supply registers are needed on the first floor, one in the half bath at location 15 and one in the hall at location 17. The need for register 17 could be argued. It is used to counteract air which infiltrates into the house when the front door is opened. Inspection of Fig. 2 shows that this air could cause uncomfortable drafts by moving into the living room from the hall through the large open doorway. It will be assumed that air from registers 15 and 17 returns through grille C.

Supplying the Second Floor

As indicated by Fig. 3, the second floor of the house has three bedrooms and a bath room. The bedrooms are substantially square in plan. Therefore, we would expect no particular difficulty in handling distribution in these rooms with a single register each. The exact location of these cannot be made arbitrarily, since possible riser locations are limited usually to second floor partitions which are directly above first floor partitions. In addition, of course, second floor risers cannot occupy the same stud space previously assigned to first floor risers. By referring to both Figs. 2 and 3 it can be seen that the bedroom register locations are pretty much limited to locations 21, 22, and 25.

Two other supply registers are also needed on the second floor. One of these, number 23, is required for the main bath room. The other, number 24, supplies air to the stairwell which, because it is enclosed and has two exposed walls, has a

rather large heat loss or gain as the case may be.

No Second Floor Returns

Bedrooms are not as critical regarding the need to prevent cold down drafts from exposed walls and windows as are rooms on the first floor. In the interests of economy, therefore, no return grilles are used on the second floor. All second floor air will flow down the stairwell and will be picked up by the return grilles B, C, D, and E. Supply registers 24 and 17 will help to prevent this air from creating cool drafts in the winter.

The absence of returns in the bedrooms allows for winter operating economy in addition to the initial saving. Many people prefer cool sleeping quarters. This can be accomplished nicely without cooling the entire house simply by closing hall doors and supply register dampers in those rooms it is desired to cool down. This procedure effectively isolates these rooms from the heating system. If return grilles were located in each room, isolation would not be possible (unless, contrary to usual practice, these grilles were closed also). Cool air from open windows would be pulled into the system and require additional heat to maintain temperatures in the non-sleeping sections of the house.

With no individual returns in the bedrooms, the system will have what may be considered a disadvantage in that it will be necessary to keep doors open in the cooling season in order for the system to function properly.

In last month's discussion it was decided that the basement of the house would be heated since it offered possibilities as a recreation room. The basement was not considered as part of the cooling load, however, as it was thought that cool air from the house proper could be diverted temporarily to this space during the cooling season if required on occasion. Accordingly, we spot on the basement plan, Fig. 1, warm air supply registers at locations 01, 02, 03, 04, 05, 06, and 07 as appearing to give adequate distribution. In placing these, simultaneous

RISER, BRANCH, register and trunk sizes to be selected for sample house

Room	Outlet No.	Cooling Selections from Manual 11					Heating Selections from Manual 7				
		Cooling Btu per hr	Riser	Branch	Supply Register	Increase in Trunk	Heating Btu per hr	Riser	Branch	Supply Register	Increase in Trunk
Living	18	3433	12x3 1/4	5x8	12x6	3	4470	10x3 1/4	4x8	10x6	2
Hall	17	682	10x3 1/4	4x8	10x6	2	1794	10x3 1/4	3x8	10x6	1
Bsmt.	07	—	—	—	—	—	1952	10x3 1/4	3x8	10x6	1
S.W. Bed.	25	2957	12x3 1/4	5x8	12x6	3	9437	(2) 10x3 1/4	8x8	24x6	5
Stairw l.	24	1317	10x3 1/4	4x8	10x6	2	5026	12x3 1/4	5x8	12x6	3
Living	16	3433	12x3 1/4	5x8	12x6	3	4470	10x3 1/4	4x8	10x6	2
Bsmt.	05	—	—	—	—	—	1952	10x3 1/4	3x8	10x6	1
Bsmt.	06	—	—	—	—	—	1952	10x3 1/4	3x8	10x6	1
1/2 Bath	15	270	10x3 1/4	4x8	10x6	2	1127	10x3 1/4	3x8	10x6	1
Bath	23	472	10x3 1/4	4x8	10x6	2	1826	10x3 1/4	3x8	10x6	1
Living	14	3433	12x3 1/4	5x8	12x6	3	4470	10x3 1/4	4x8	10x6	2
Library	13	1090	10x3 1/4	4x8	10x6	2	3270	10x3 1/4	3x8	10x6	1
N.W. Bed.	22	3485	12x3 1/4	5x8	12x6	3	6956	12x3 1/4	5x8	12x6	3
N.E. Bed.	21	1567	10x3 1/4	4x8	10x6	2	5968	10x3 1/4	4x8	10x6	2
Bsmt.	03	—	—	—	—	—	1952	10x3 1/4	3x8	10x6	1
Bsmt.	04	—	—	—	—	—	1952	10x3 1/4	3x8	10x6	1
Dining	11	2470	10x3 1/4	4x8	10x6	2	6193	10x3 1/4	4x8	10x6	2
Bsmt.	01	—	—	—	—	—	1627	10x3 1/4	3x8	10x6	1
Kitchen	12	2470	10x3 1/4	4x8	10x6	2	6193	10x3 1/4	4x8	10x6	2
Bsmt.	02	—	—	—	—	—	1627	10x3 1/4	3x8	10x6	1
Returns A, B, C, D, E		1/5 total heat Btu per hr each					14843	two stud spaces	one joint space	30x6	7
								14x3 1/8"	7" deep		

Basement load assumed to be 1/4 in equipment room, 3/4 in balance of basement.
Return air load shared equally by each grille.

consideration must be given to first and second floor branch take-offs so that there will be no interference.

Distribution System Roughed In

At this point we have located all supply registers and return grilles. Riser locations must now be considered. Reference to Figs. 2 and 3 shows that we can drop to the basement through all walls in which registers are located except for register 25 in the southwest bedroom. It is necessary to run back through the closet in this room to connect to a riser that can drop to the basement. Actually, two risers are shown for this room as it was found that a single one would not handle the load required.

Having checked riser locations, boot positions can now be spotted on the basement plan, Fig. 1. The next job is to rough in a trunk and branch system which will connect all the supply and return boots to the conditioning equipment. This was done on a preliminary basement plan similar to Fig. 1. The various boot and riser locations seemed to lend themselves nicely to the trunk and branch system shown.

The rear room of the basement was chosen as the equipment room since it is at one end of the trunks, and since it can be closed off from the rest of the basement. The east section of the basement at the foot of the stairs will serve nicely for laundry equipment and general storage, since it is convenient to the door in the east side of the house. The large room under the living room will be reserved for recreation purposes.

Sizing the System

Now that the roughing in of the duct and distribution system has been completed and a location for the equipment established, we can proceed with the next step which is the sizing of the duct system components in accordance with Manuals 7 and 11. The following information is needed:

- 1) Room location (first or second floor).
- 2) Actual duct length measured from bonnet to boot, in feet.
- 3) Heat loss or gain of each room, Btu per hr.
- 4) Equivalent length, in feet, of each take-off, elbow, and register.

Having the above information, it is possible to select from Manuals

7 and 11 riser, branch, register, and trunk sizes. A summarized set of selections for the sample house is shown in the accompanying table. Lengths for item 2 above were scaled from the basement plan. Equivalent lengths for item 4 above were selected from Manual 7 as follows:

- 1) Connection from conditioner to supply trunk 10 eq. ft
 - 2) Branch take-offs from trunk duct 10
 - 3) Boot fitting from branch to stack 30
 - 4) High sidewall register 60
- 110 eq. ft

The table is divided into two sections, one based on Manual 7 for heating, and the other based on Manual 11 for cooling. A comparison of sizes shows that the selections based upon cooling generally are larger than those required for heating. This is not true in the case of all rooms, however. In the case of the southwest bedroom and the stairwell, the heating requirement governs size. Final selections were based, of course, upon the largest size indicated. All supply ducts in the basement are to be insulated

(Please turn to page 102)



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HERE ARE some samples of letterheads selected from the mail of American Artisan

Letterheads with "Oomph" Swing Sales

An attractive letterhead which keynotes the character of a business can build prestige, good will — and sales! Type face, layout, color and other art work are important considerations for the contractor selecting a new letterhead or a design for invoices and other printed forms

EVERY EXECUTIVE knows that the best salesman is the one who makes the best impression on the customer he calls on. If the salesman is neat, clean and well-groomed, he just naturally wins a degree of respect which augurs well for potential sales.

So it is with a good letterhead, which actually is one of the best salesmen any business can have. If the letterhead is neat and attractive, it speaks well for every phase of an organization, and it builds prestige, good will and acceptability for that company, the product it sells, and the service it renders.

The four factors to be considered in planning a letterhead are (1) type faces and what they contribute to the design of the letterhead; (2) layout and its use in planning the letterhead; (3) color in the letterhead; and (4) the use of art work and novelty effects.

Type, Color, Art Work Should Suit the Firm

There are many kinds of type faces — Roman, Modern, Script, Novelty — each with an individual personality which reflects some definite impression. For example, Roman type faces usually portray dignity; Modern type faces are streamlined and easy to read; Script type faces can be used for both informality and formality; and Novelty type faces are best suited to creating unusual effects. Type faces always should be selected to fit the character of the company.

In the same manner that certain type faces give different visual effects to your letterhead, so does variation in the layout or arrangement of the type, the artwork or decorative ornaments. The layout of your letterhead can range from ultra-conservative to modern and futuristic. By using the right layout you can achieve the exact impression you wish to create. You can emphasize a single word or an entire line of copy. You can accomplish the unusual or you can convey the impression of dignity and strength.

There is this saying about the use of color: "So easy to use . . . so easy to abuse." Color should be used primarily for emphasis, for spotlighting, for accentuation. It should be remembered that color just for the sake of color is a poor policy. Color should have a definite purpose in the planning of your letterhead.

This is one of a series of speeches given by W. Frank Welch, president of The Ad-Ver-Tis-er, Inc., on "Making Ourselves Acceptable."

Art work, like color, is something which is not always essential in a good letterhead, but can often improve it. Art work can be used to add a distinctive touch. The creation of a sketch, hand-lettering or a decorative motif will add "atmosphere" or "tone" to the letterhead. Also available are many types of ornaments and decorations which the printer can supply and which can be used artistically to "dress up" letterheads.

Use Letterhead Theme on Other Forms

Once you have selected a letterhead — one which serves as the keynote to the character of your business — it is equally important that you continue to use the identifying theme in many other printed forms. Of course, envelopes should be printed which harmonize with the letterhead.

The personality of the letterhead should be incorporated in invoices, checks, tags, labels, mailing stickers and throughout the entire range of printed materials used for the successful operation of a business. Everything which carries the name of an organization should have a continuity which enables the customer and the prospective customer to easily identify the product or service with the name of the company and the people who operate it.

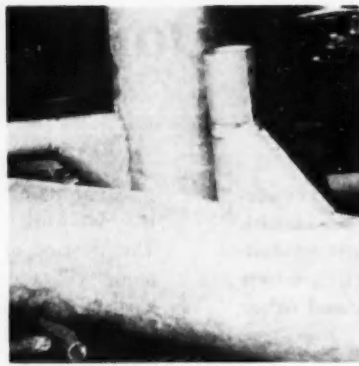
Letterheads, calling cards and other printed forms should, basically, be of the type and quality which the business can afford. Extravagance here is out of place. Dignity and good taste are never out of place and are usually safest. This, of course, does not rule out art work and color, so long as the result bears directly upon the business.

Simplicity the Keynote

An artistic conception of a trademark, name impact or description of general activity, if it can be included in the letterhead without being gaudy or without degradation to the message of the letter, should lend effectiveness.

In general, however, letterheads, and other printed matter, should be dignified and done in either script or block lettering, varying size of type for emphasis. The day has passed when we put all of the branch office addresses on the margin of the letterhead, or the names and titles of the entire executive personnel. Simplicity is not only the keynote of refinement, but it will keep the cost down, it will be attractive and in good taste, and, most important of all, it will create a good public impression.

The planning of your letterhead and other printed pieces may well call for consultation with your printer, a commercial artist, or an advertising expert. Advice from competent, experienced promotional-minded men can pay dividends in attaining the desired results.



THE SHORT, intermittent welds joining the angle iron to the sheet metal (*left*), the welds in the galvanized iron assembly (*center*), connecting air outlets to the main header sections, and the intermittent welds joining sections of 20 gage conduit (*right*), show that the shop making them knows . . .

How to Weld Thin Sheets to Thick Materials

By Robert Thomas
Welding Engineer
The Lincoln Electric Co.

. . . using carbon arc process

UNUSUAL DESIGNS and difficult fabrication problems are all in a day's work for most sheet metal shops. Take, for example, the problem of welding thin sheet to angle irons. The usual difficulty here is to get sufficient welding heat for fusion into the angle iron and to prevent that heat from burning through the sheet metal.

United Sheet Metal Co., Philadelphia, has solved the problem of welding thin-to-thick materials by means of carbon arc welding with copper alloy rod. With a 3/16 in. diameter carbon electrode held in the standard electrode holder, the welder produces the welding arc at the joint, which consumes the copper alloy rod.

By directing the arc more into the heavier metal section, the welder gets proper fusion there and avoids excessive heat in the sheet metal. It is simple to control the relative heats in the two sections to produce smooth, uniform welds. Because of the intense, highly concentrated welding heat, distortion and warpage of the sheet metal is not a problem.

The welding rod is held at an angle of about 15 deg with the horizontal and is fed in at a rate to produce the desired size of weld. Welding current is supplied by a 150 amp welder.

A typical application — for a ventilating duct of an industrial oven — is shown at left, above. The duct

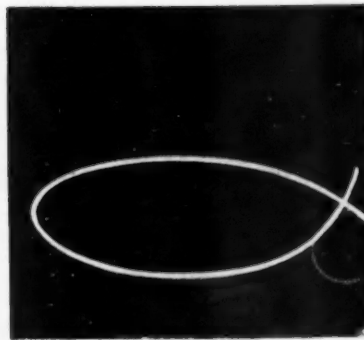
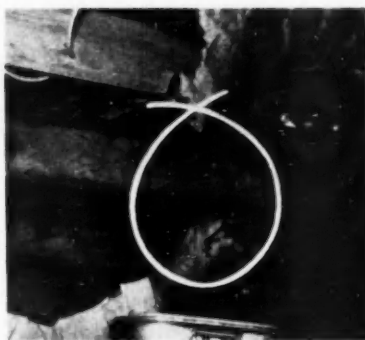
itself is of 14 gage galvanized iron, fabricated by arc welding. The corner welds are visible. The angle iron used for stiffening and supporting is then welded to the sheet by a series of 1 in. welds every 6 in.

The process is also used for sheet metal assemblies such as that shown at center, above. Here sufficient strength in the take-off connections can be provided by a small tack weld every 3 or 4 in. The joints are then soldered for tightness.

Fabrication of the 10 in. conduit sections shown at right, above, is simplified by welding. These sections formerly were riveted. Now four 1 in. welds for each joint do the job. Foreman Ernest Schmidt of United points to one of the welds. The sections are rolled, crimped longitudinally, slipped into the slightly larger adjoining section for 1 in., and welded at the 90 deg points.

In all welding with the carbon arc process, the d-c welder is connected for straight polarity and the control is set for special welding with current of 50 to 150 amp, depending upon the material being welded.

United Sheet Metal Co. has been using arc welding for about 10 years. The company has three welding machines which are used in the shop for fabrication and are also moved to job locations for installation work.



STAINS ON THE CEILING and walls (*left*) in a residence gave the appearance that the roof was leaking. When the plaster was removed (*center*), water poured from the insulation and pearls of water dripped from the wet underneath side of the sheathing and beams (*right*). However, when water was hosed on the roof the ceiling became drier — proving the roofing contractor's contention that wet spots were caused by condensation rather than a roof leak

Many “Roof Leaks” Due to Other Causes

. . . such as condensation, cracks in brick walls and cracks in concrete decks.
The roofing contractor who can detect these problems will avoid doing unnecessary, expensive repair work

By Lawrence E. Gichner
Sheet Metal Contractor

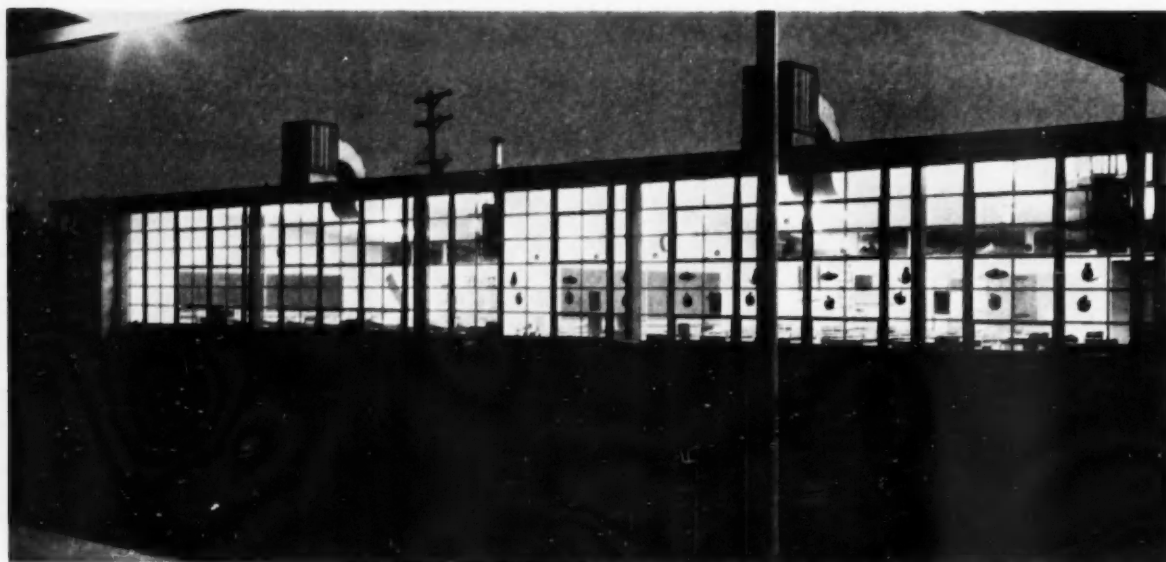
CONDENSATION is increasingly becoming a cause of damp spots on walls and ceilings — damp spots which, in many cases, are mistakenly attributed to roof leaks. Years ago there was a sufficient number of small cracks around the doors and windows of buildings to provide outside air which virtually eliminated the causes of condensation. Today, the use of insulation and storm windows is growing. Crevices have been so effectively sealed that very little outside air can penetrate, and condensation may occur. The roofing contractor must be aware of this problem to avoid beginning unnecessary and expensive renovation work involving the repair of a roof which subsequently is found to be in excellent condition.

Take for example the roof which our firm had installed on a new school building, and which, after three months, was reported to be leaking badly. Leaks showed up particularly in the center of a stairway located in the center of the building. Our explanation, after careful

examination, was that the leaks were due to condensation. We feel that seldom, if ever, does a new roof give trouble in the body of the roof. If it does show signs of leaking, that leaking in most cases is traceable to the flashings.

A few weeks elapsed, and one morning we were called by both the builder and architect and told our reasoning was wrong because during the rain of the previous night water had come into the building. Tarpaulins were put on the floor and men were put to work chopping down the plaster ceiling. The laborers also removed the 4 in. of batt insulation that lay between the joists directly on top of the plaster. Water poured off the insulation in streams from where it had settled in little pools. When the underneath surface of the roof sheathing boards came to light they were wet and covered with pearls of water. Never in my 25 years of roofing experience have I seen so large an area so completely

(Please turn to page 95)



1 EVAPORATIVE COOLERS are used in school buildings, such as the one shown, as well as in homes and places of work and recreation

Selling Evaporative Coolers

By Robert S. Ash
Professional Engineer

Selling methods that have proved effective for other products can be geared to fit evaporative coolers. . . The best sources should be used to get prospects; the sales talk should be built around the prospect's needs and the special advantages of evaporative coolers; and displays and other merchandising tools should be used to augment the selling campaign

ALTHOUGH EVAPORATIVE coolers have been widely available commercially only since about 1938 and their use was originally confined to Arizona and the interior of California, the past 15 years have seen them installed in almost all areas of this country where there is a need for summer cooling. Evaporative coolers are now installed in residences and places of work and recreation. Children are becoming acquainted with this product through its increasing use in school buildings (Fig. 1). Even though the product has not received widespread publicity, it is being used in new markets

with each succeeding season. In the past five years, evaporative coolers have become commonplace in many parts of Mexico and in lands such as Saudi Arabia and Iran. The 1953 market for evaporative coolers exceeded 500,000 units in the U. S. Of this number, approximately 80 per cent were produced by manufacturers located in Arizona and California. Six manufacturers accounted for over 70 per cent of the coolers made.

Unlike many other products sold by the independent sheet metal shop, the evaporative cooler is sold through other types of retail outlets. Table 1

indicates the per cent of total sales for the various types of retail dealers selling evaporative coolers.

Table 1—Estimated Retail Cooler Sales by Type of Outlet

Sheet Metal Shops	40%
Appliance Stores	15
Specialty Dealers	15
Mail Order Houses	10
Auto Accessory Stores	10
Hardware Stores	5
Miscellaneous	5

The great majority of "tailor made" installations, where the larger size coolers are used and where the best margin of profit can be expected, is made by the sheet metal shops. The other fringe businesses usually cater mainly to the less profitable portable cooler market.

What can the sheet metal dealer do to secure a bigger share of this business, which is considered to be a \$50 million industry? Let us first briefly review the basic principles

of salesmanship and the means of obtaining prospects, since selling evaporative coolers involves the same sales fundamentals as selling any other product.

Gear Talk to Buyer's Needs

We know that people buy *advantages* rather than merchandise. The wise dealer recognizes this fact and prepares himself to show people how an evaporative cooler can add to their measure of comfort. He points out the cool temperature, the stimulating effect of the air, and the freedom from dust, pollen and other foreign matter.

However, the sheet metal dealer who wants to "close the deal" must know not only *what* the prospect buys but *how* he buys. Advantages such as those mentioned constitute only one of the main points which a prospect generally considers before buying. Some of these points are shown in the accompanying box.

Knowing the buying questions the customer usually asks, the dealer is in a position to help him with each of the answers. On the first point, for example, it is up to the dealer to describe the advantages of the product in terms of *needs*. An analysis of sales techniques in past years indicates that a person will buy for one or more of a variety of reasons:

- Comfort and convenience.
- Safety and protection.
- Pride of ownership.
- Affection for family.
- Gain and economy.

Of course these motives are not uppermost in one's mind when he buys. A prospect may be entirely unaware of why he is buying, but a good salesman can use basic appeals to start a train of thought that will lead to the development of one or more of these fundamental motives.

Examples of this may be readily observed in the sales talk of an aggressive dealer. He lets the prospect's interests dominate his appeal. To the family that is seeking comfort he points out the benefits of cool air; to the florist, he points out that a mild temperature will protect his plants; he tells the home owner who is proud of his home that he can build prestige with a cooler; to the

A Prospect Wants to Know —

- 1 What advantages am I buying?**
- 2 What product will best provide these advantages?**
- 3 Which individual or company is best qualified to supply the product?**
- 4 Is the price worth it — are the advantages supplied worth as much or more than the cash outlay required to get them?**
- 5 Is this the right time to buy?**

father whose child is bothered with hay fever he points out that a cooler will filter out the pollen in the air; and he appeals to the shopkeeper's desire for gain by pointing out that larger volumes of business will result during hot weather if the store is cool (people will come in more often and will stay longer).

Answers Do a Selling Job

The dealer can go on to answer the prospect's second question by pointing out how evaporative coolers provide the advantages he wants. He may explain that air motion alone does not provide comfort — that comfort requires air motion plus cooling. He can then describe how evaporative coolers provide both. He may also point out how well evaporative cooler installations can be made to blend in with whatever is the architectural style of a home or a store (possibly using photographs of actual installations or taking the prospect to see them), and he can go on to discuss other advantages which would be provided by any evaporative cooler installation.

In addition, the dealer should keep in mind the various types of evaporative coolers, since each type offers special advantages for specific types of applications. Coolers have been developed to provide comfort for one or two rooms, for use where permanent water connections are not feasible, for use where outside platforms are provided, and for such special applications as trailer cooling. (See

the second article of this series in the August 1953 Artisan for the special uses of various types of evaporative coolers).

As to the third question listed — the dealer can convince the prospect to buy from him by the way in which he answers other questions, by demonstrating that he knows the facts and is reliable. In addition, he can describe the advantages of the particular line or lines of coolers he carries by discussing them in terms of the type of material in the pad, the effectiveness of the water distribution system, the corrosion resistance of these models, etc., pointing out all the features that the particular manufacturer has incorporated which add to the durability and efficiency of the units. (See the third article of this series in the September 1953 Artisan for the criteria for evaluating evaporative coolers).

As to the question of price — if the dealer has fully and effectively described the advantages of evaporative cooling, this in itself will help convince the buyer that the cooler is worth the price. The dealer can also describe such conveniences as lay-away plans, which mean a lower cash outlay at first.

In regard to the last point listed — the salesman should try to convince a prospect that *any* time is the right time to buy. Before the cooling season, the dealer might emphasize the possibilities of starting payments early or of beginning ductwork or other sheet metal work (if any is needed), so that the cooler or the installation will be ready for use from the very beginning of the hot weather. In the middle of the cooling season, the dealer might emphasize the immediate relief from heat that the prospect will experience.

How to Contact Prospects

The aggressive dealer will want to contact more prospects than would normally enter his place of business. To do this, he can use a variety of methods and sources that have proven effective. Among them are:

- Cold canvassing.
- Telephone solicitation.
- Getting leads from satisfied customers.

Getting leads from salesmen in non-competitive fields.

Stimulating inquiries through newspaper, radio, television, classified and telephone book advertising.

Obtaining names through surveys and special promotions.

Scanning newspaper notices, building permits, etc.

Reviewing old accounts.

Reviewing service calls.

Participating in civic affairs.

The ads placed in newspapers, telephone books, etc., will be most effective in bringing out prospects if they are made an integral part of the dealer's merchandising program. That is, they should *display* his merchandise in the most striking, attractive way possible. People like to see the things they may want to buy. Display ads in the telephone directory are effective. Direct mailings can illustrate as well as describe evaporative coolers and other products. The dealer can utilize store windows, interior displays, neighborhood billboards, model homes and exhibits, and truck and installation signs to attract new prospects and to inform steady customers of new items. To attract customers, advertising should feature a *reason* (why the prospect needs the product) and should present an *advantage* (such as an offer of a cooling survey or a home demonstration — possibly using a portable cooler, this type of offer being especially effective in canvassing and telephone solicitation).

Many evaporative cooler manufacturers are ready to help the dealer build sales through promotions and cooperative advertising plans which they have prepared and which usually are included in newspaper, radio and television ads, displays, direct mail pieces, and special displays and exhibits. It is sometimes possible to arrange for the manufacturer to pay part of the cost of joint advertising.

However, the mere possession by the dealer of display materials or consumer literature is no guarantee of increased business. All such displays and literature must take into account such factors as current local business conditions, local buying habits, and the season of the year—they must be used effectively to obtain the desired results.

Using the Showroom

One of the most important merchandising devices is the showroom display. A completely equipped showroom with effective displays helps prospects associate the advantages they want to buy with the particular product before them. Neither a showroom nor a display, however, can produce results by itself. It must be carefully planned and tended.

First on the list of points for the dealer to check is the attractive, clean appearance of the displays (a neglected showroom actually repels prospects). Another important point is to keep the display equipment tuned to the season and in the proper proportion to the interest of the trade served by the company. There are showrooms where the dealer has overdone or underdone the job—either in having too many things on display or not enough. In such cases whatever the investment may have been it will not accomplish the desired results. So much may have been invested that a fair return cannot be expected; so little may have been invested that it fails to make a sufficient impression. When properly used and maintained, a showroom is a sales tool which may well make additional sales possible.

While there are many advantages to selling in the home (on the prospect's grounds) there are also many advantages for the dealer in selling in the showroom (on his home grounds), where he has everything he needs to convince the prospect of the worthiness of the product. These two approaches can be used to augment each other. The sale not completed in the home can be carried to the showroom; the sale not completed in the showroom can be "closed" in the home.

Lay Away Plan Makes Sales

Good merchandising includes not only ads and displays but anything which stimulates the sales of the dealer's product. Consequently, the list can be an extensive one. An excellent example of good merchandising is the combination pre-season sale and lay away promotion program to stimulate early seasonal buying.

Every cooler sale made before the regular season will be an "extra" sale. Furthermore, top quality usually goes first in the lay away plan; this means bigger sales for the dealer. The lay away publicity will also establish the shop as the evaporative cooler center in the community with those customers who wait until the peak of the season to buy.

Pre-season sales programs generally are scheduled for March 1 through May 1. It is the usual plan to ask the purchaser to pay 10 per cent down for evaporative coolers costing \$50 or less and \$5 down for evaporative coolers costing \$50 and over. No interim payments are required while the dealer holds the cooler and not until May 31. The full balance of the purchase price, however, is due when the customer takes delivery of his cooler on or before May 31. The dealer can avoid losing sales on May 31 simply because the customer cannot pay the full amount of balance by suggesting that he pay the balance on a monthly payment plan. The lay away plan can be made more successful by paying an additional commission to the salesman to encourage him to talk up the plan to his prospects.

The lay away plan is seldom used for sales of custom made installations where ductwork is employed. This type of sale is usually financed through the usual money lending institutions, such as banks and home loan associations.

Must Keep Adequate Inventory

Important as salesmanship and merchandising principles are, there is one special characteristic of evaporative cooling selling that is by far the most important to consider when planning a sales program — evaporative coolers are a seasonal item. Generally the active selling season is only 90 days (May, June and July). This means that the sales minded dealer will have provided himself with an adequate inventory so that when the exceptionally hot spells hit, he will be able to close a maximum number of sales. There is considerable wisdom in the adage "You cannot sell out of an empty wagon."

Experienced evaporative cooler dealers have sold as many as \$20,000 in coolers on one day because they had them in stock when the weather was unusually hot. The goal of the dealer should be to have an adequate inventory and yet not so heavy a one that he will carry over merchandise to the following season.

The number of sales expected cannot be predicted for any product, but a weekly tabulation of merchandise on hand compared against previous stock for similar periods in past years will enable the dealer to do a better merchandising job. Fig. 2 shows a form that has been used by a number of successful dealers. Data gathered through the use of this form indicates that sales of the larger size evaporative coolers reach their peak during the pre-season period and that the smaller and less expensive units reach their sales peak toward the end of the cooler season. This may be attributed to the more prudent buying of commercial users who wish to take full advantage of the coolers for the entire summer and to the impulse buying of the general public. The business done by a typical evaporative cooler dealer during the second week of June might include 28 fan coolers with 1500 cfm capacities and a variety of blower cooler units — 40 with 2500 cfm capacities, 47 with 1500 cfm, 50 with 4500 cfm, and 67 at 5500 cfm. This information should be entered on a weekly inventory record that could provide useful information for future sales programs.

A Promising Outlook

It is timely to consider the future of the evaporative cooler industry, especially in view of the widespread interest in year 'round air conditioning using mechanical refrigeration. Many well qualified people are of the opinion that evaporative cooling has reached its peak and will be superseded by refrigeration. The argument is often used that a properly sized refrigeration system can produce the temperature and humidity conditions selected by the designer and that this cannot be said for evaporative cooling, since the final

conditions are dependent upon climatic factors over which man has no control. At first glance, this would appear to be true.

However, we must remember that in evaporative cooling we are concerned only with the wet bulb temperature, and the wet bulb temperature (as revealed by an analysis of weather bureau data) is surprisingly uniform. While daily variations of dry bulb temperature and relative humidity will be considerable, the wet bulb temperature remains relatively stable, seldom fluctuating more than 5 F. Therefore, evaporative cooling is a dependable means of securing summer comfort in areas where climatic conditions are suitable. It should also be pointed out that both the initial and operating costs of evaporative cooling are low.

For installations where mechanical refrigeration is selected, evaporative cooling is becoming an important adjunct to reduce the load on the refrigeration system. In some houses the roof load represents 20 per cent or more of the total heat load. This load may be considerably reduced through the use of an evaporative cooler to reduce the attic temperature. For a normal 5 ton installation, the cooler will bring down the load to 4 tons on this basis.

It is also well to mention that there has been a slow acceptance of evaporative cooling primarily due to a prevailing conception that mini-

REPORT FOR WEEK OF (DATE)	cat. no. cfm size				
1. Quantity on hand (last report (date))					
2. Quantity rec'd. since last report					
3. Quantity on hand today					
4. Quantity sold since last report					
5. Total unit sales this year to date					
6. Est. total unit sales for this year					
7. Total unit sales last year					
8. Est. per cent of cooler sales remaining this season					
9. Remaining per cent to be done past year as of this date					
10. Additional quantity needed (line 8x6 minus lines 3 + 11)					
11. Quantity on order					
12. Overstock					

2 A WEEKLY TABULATION of the evaporative coolers on hand (made on a form such as the one shown) is useful in merchandising because data can be compared with that of similar periods in past years

mum summer comfort conditions should not exceed 80 F dry bulb temperature, 50 per cent relative humidity and air motion of 15 to 25 fpm. Actual experience has proved that evaporative coolers installed in areas and under conditions where such design conditions could not be met are giving satisfaction. While further research should be undertaken to establish a scientific basis for this, we already know that in a moderate temperature people will feel thermally comfortable when the relative humidity does not exceed 80 per cent; that present day summer clothing trends and acclimatization to surrounding climatic conditions affect the comfort zone; and that air movement will reduce the effective temperature. Also, with high humidities, much greater air speeds are permissible without the sensation of draft, and water scrubbing of air imparts a freshness to it. It would appear, therefore, that the evaporative cooling industry has a very promising outlook for the foreseeable future.

[Fig. 1 courtesy International Metal Products Co.]

WHY'S AND HOW'S OF EVAPORATIVE COOLING

This is the last in a series on evaporative cooling.

ARTICLES HAVE COVERED:

- ▶ How evaporative cooling works (July issue).
- ▶ Types of coolers (August issue).
- ▶ Cooler design and construction (September issue).
- ▶ Sizing the cooler (October issue).
- ▶ Design of cooler installations (November issue).
- ▶ The cooler industry and its sales (this issue).

Housing Census Heating Data

Cincinnati • Little Rock • Peoria • Portland • San Jose • Trenton

SUGGESTIONS on how a warm air heating dealer can use some of the housing data available from the Bureau of Census were given in the May 1953 American Artisan. Localities covered in the reports are metropolitan

areas that are socially and economically integrated with the central city. Data for various areas has been reported in American Artisan for June to November, inclusive. Additional reports will appear regularly.

Types of Fuel Used in Centrally Heated Dwelling Units

		Standard Metropolitan Areas			Metropolitan Areas			Other Areas			
	Cincinnati, Ohio	Hamilton County, Ky.	Campbell County, Ky.	Kenton County, Ky.	Little Rock and North Little Rock, Ark.	Peoria County, Ill.	Tazewell County, Ill.	Portland, Me.	San Jose, Calif.	Trenton, N.J.	
	The area										
All dwelling units	285,957	228,855	22,980	52,144	59,228	76,675	52,955	23,740	37,801	91,670	60,784
Number reporting heating equipment	271,810	218,585	22,420	50,805	54,785	73,705	51,235	22,470	34,640	84,475	59,330
Central heating	194,465	158,485	15,750	20,250	16,575	55,755	39,710	14,045	26,885	50,720	52,350
Coal	108,450	88,545	7,900	12,005	155	59,860	29,470	10,390	13,200	225	25,940
Wood	615	470	85	60	125	180	110	70	295	240	180
Utility gas	74,845	59,910	7,295	7,640	15,590	9,505	7,600	1,905	1,020	47,500	5,650
Bottled gas	900	675	125	100	350	105	50	55	45	995	85
Liquid fuel	6,600	6,070	220	310	75	3,565	2,110	1,455	11,325	920	21,540
Other fuel	1,950	1,850	60	40	50	350	220	150	685	700	755
Not reported	1,125	985	65	75	70	190	150	40	515	140	240

Types of Nonfarm Dwelling Units, by Type of Heating and Year Built

	Total occupied					Owner occupied		Renter occupied						
Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more	Total	1 dwelling unit, detached	All other dwelling units	Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more

Standard Metropolitan Area of Cincinnati, Ohio — Hamilton County, Ohio, Campbell and Kenton Counties, Ky.

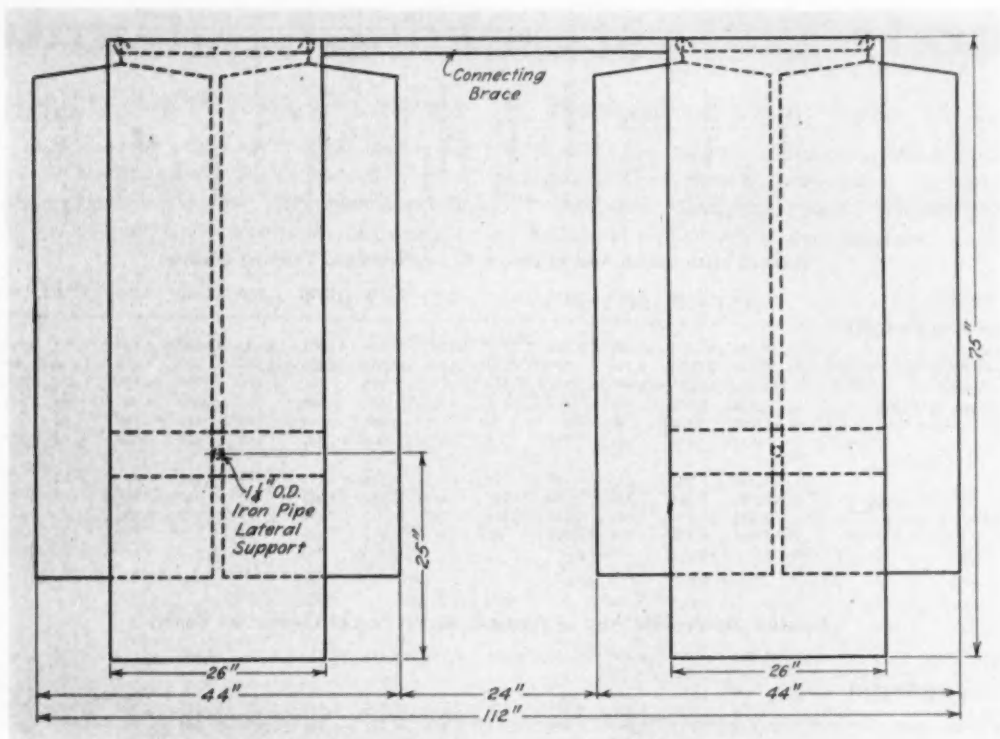
All occupied units	265,150	111,325	65,785	42,550	28,370	17,120	128,360	95,890	32,470	156,790	15,455	40,930	36,405	27,195	16,825
HEATING EQUIPMENT															
Central heating	186,146	91,676	47,741	22,904	11,855	11,990	108,285	82,660	25,625	77,865	9,016	27,387	18,601	11,074	11,785
Piped steam or hot water	51,709	15,722	9,187	9,157	7,255	10,410	19,385	13,568	5,817	32,324	2,154	5,250	7,767	6,884	10,269
Warm air furnace	134,437	75,954	38,554	13,767	4,582	1,580	88,898	69,092	19,806	45,539	6,862	22,137	10,834	4,190	1,516
Noncentral heating, with flue	65,441	15,699	14,754	15,669	15,215	4,104	15,854	10,655	5,201	47,587	5,046	11,315	14,320	12,892	4,014
Nonctrl. htng., without flue; or not htd.	9,845	2,207	1,934	2,771	2,184	747	2,355	1,447	908	7,488	760	1,372	2,471	2,138	747
Not reported	5,728	1,752	1,354	1,208	1,156	278	1,876	1,140	756	3,852	612	857	1,015	1,090	278
YEAR BUILT															
1945 or later	17,042	11,658	1,595	2,757	755	521	11,888	10,874	1,014	5,154	784	919	2,397	755	521
1940 to 1944	15,791	9,255	1,214	1,816	1,791	1,715	9,175	8,190	985	6,618	1,065	514	1,535	1,791	1,715
1939 or earlier	225,475	88,017	61,183	36,768	25,040	14,465	105,165	75,186	29,977	120,310	12,831	38,011	31,359	23,910	14,199
Not reported	6,849	2,399	1,798	1,228	805	619	2,142	1,645	499	4,707	756	1,487	1,115	760	589

Standard Metropolitan Area of Little Rock, Ark. — also North Little Rock, Ark.

All occupied units	55,140	36,860	9,145	3,585	2,355	1,215	28,785	25,455	7,350	24,355	11,405	6,555	3,045	2,170	1,186
HEATING EQUIPMENT															
Central heating	15,911	12,599	2,064	635	201	412	11,774	10,716	1,058	4,137	1,885	1,179	462	201	412
Piped steam or hot water	2,938	1,794	570	255	134	187	1,612	1,392	220	1,326	402	395	210	154	187
Warm air furnace	12,975	10,805	1,494	382	67	225	10,162	9,324	838	2,811	1,481	786	252	67	225
Noncentral heating, with flue	15,739	11,595	2,412	865	700	169	7,806	6,982	824	7,933	4,613	1,792	777	582	169
Nonctrl. htng., without flue; or not htd.	19,455	11,510	4,210	1,918	1,254	561	8,280	6,982	1,298	11,175	4,528	5,127	1,680	1,250	545
Not reported	2,057	1,154	459	169	181	74	924	775	151	1,115	581	395	126	157	56
YEAR BUILT															
1945 or later	9,509	8,375	665	154	107	212	6,971	6,861	110	2,538	1,512	581	154	79	212
1940 to 1944	5,252	4,508	610	102	212	...	5,287	5,252	55	1,945	1,076	555	102	212	...
1939 or earlier	36,791	25,245	7,445	3,278	1,911	912	17,972	14,967	3,005	18,819	8,278	5,127	2,764	1,775	877
Not reported	1,611	935	427	52	106	91	559	397	162	1,052	538	291	26	106	91

Types of Nonfarm Dwelling Units, by Type of Heating and Year Built

	Total occupied					Owner occupied			Renter occupied						
	Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more	Total	1 dwelling unit, detached	All other dwelling units	Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more
Standard Metropolitan Area of Peoria, Ill. — Peoria and Tazewell Counties															
All occupied units	67,360	49,100	8,675	4,595	5,105	1,885	43,350	39,300	4,050	24,010	9,800	5,730	3,730	2,905	1,845
HEATING EQUIPMENT															
Central heating	58,158	42,790	7,248	3,768	2,637	1,715	41,551	37,956	3,595	16,607	4,834	4,657	2,984	2,457	1,695
Piped steam or hot water	36,863	29,535	3,562	1,508	1,194	1,266	32,036	28,855	3,181	4,827	678	1,030	859	994	1,266
Warm air furnace	21,295	13,257	3,886	2,260	1,443	449	9,515	9,101	414	11,780	4,156	3,627	2,125	1,443	429
Noncentral heating, with flue	6,864	4,806	991	610	351	106	432	365	67	6,432	4,441	944	610	351	86
Nonctrl. htng., without flue; or not htd.	1,006	858	88	...	39	21	665	659	24	343	219	64	...	39	21
Not reported	1,353	648	347	217	78	43	706	342	364	627	306	64	136	78	43
YEAR BUILT															
1945 or later	8,569	7,992	275	79	25	...	7,524	7,111	213	1,045	881	85	79	...	...
1940 to 1944	5,583	4,524	519	84	217	439	4,061	3,911	150	1,522	413	425	55	192	439
1939 or earlier	51,283	35,278	7,688	4,247	2,781	1,289	31,055	27,432	3,625	20,228	7,846	5,049	3,413	2,631	1,289
Not reported	2,087	1,509	194	185	82	117	872	848	24	1,215	661	170	185	82	117
Standard Metropolitan Area of Portland, Me. — Part of Cumberland County															
All occupied units	33,880	13,745	8,390	5,560	3,430	2,755	15,335	11,550	3,785	18,545	2,195	5,725	4,695	3,225	2,705
HEATING EQUIPMENT															
Central heating	26,224	11,296	6,291	3,443	2,578	2,616	13,203	9,968	3,235	13,021	1,528	3,941	2,794	2,392	2,566
Piped steam or hot water	20,631	7,657	4,684	3,199	2,512	2,579	9,742	6,891	2,851	10,989	766	2,593	2,658	2,326	2,546
Warm air furnace	5,593	3,639	1,607	244	66	37	5,461	3,077	384	2,132	562	1,348	136	66	20
Noncentral heating, with flue	5,930	1,952	1,718	1,474	746	40	1,704	1,365	339	4,226	587	1,514	1,339	746	40
Nonctrl. htng., without flue; or not htd.	945	244	164	475	44	20	111	65	46	834	179	145	446	44	20
Not reported	784	254	217	170	63	80	318	152	166	466	102	124	116	44	80
YEAR BUILT															
1945 or later	1,183	1,152	31	...	...	...	1,083	1,052	31	100	100	...	...	...	...
1940 to 1944	2,486	1,254	568	209	179	276	1,079	1,079	...	1,407	175	568	209	179	276
1939 or earlier	29,307	10,967	7,649	5,192	3,103	2,396	12,826	9,121	3,705	16,481	1,846	5,015	4,356	2,918	2,346
Not reported	905	372	142	159	149	83	347	297	50	558	75	142	130	128	83
Standard Metropolitan Area of San Jose, Calif. — Santa Clara County															
All occupied units	76,425	62,290	7,260	3,355	2,280	1,240	49,350	47,050	2,300	27,075	15,240	5,595	2,945	2,090	1,205
HEATING EQUIPMENT															
Central heating	47,931	40,697	3,831	1,560	1,106	737	35,318	33,961	1,357	12,613	6,736	2,765	1,388	1,022	702
Piped steam or hot water	3,415	2,246	299	174	300	396	1,925	1,738	187	1,490	508	176	131	279	396
Warm air furnace	44,516	38,451	3,532	1,386	806	341	33,393	32,223	1,170	11,123	6,228	2,589	1,257	743	306
Noncentral heating, with flue	23,799	18,016	2,818	1,582	969	414	11,941	11,192	749	11,858	6,824	2,326	1,388	906	414
Nonctrl. htng., without flue; or not htd.	3,729	2,855	521	172	163	18	1,413	1,309	104	2,316	1,546	439	150	163	18
Not reported	961	720	86	41	42	72	671	587	84	290	133	66	19	...	72
YEAR BUILT															
1945 or later	20,463	18,112	1,278	607	218	248	16,082	15,835	247	4,381	2,277	1,082	556	218	248
1940 to 1944	6,350	5,783	362	139	31	35	4,649	4,551	98	1,701	1,232	264	139	31	35
1939 or earlier	47,682	36,997	5,490	2,443	1,937	815	28,045	26,149	1,896	19,637	10,848	4,143	2,084	1,747	815
Not reported	1,893	1,396	130	167	94	106	536	512	24	1,357	884	106	167	94	106
Standard Metropolitan Area of Trenton, N. J. — Mercer County															
All occupied units	57,020	19,205	29,585	4,220	2,245	1,765	36,095	15,960	20,135	20,925	3,245	10,380	3,555	2,050	1,695
HEATING EQUIPMENT															
Central heating	50,505	17,176	26,281	3,370	1,996	1,682	35,584	14,833	18,751	16,921	2,343	8,364	2,781	1,813	1,620
Piped steam or hot water	32,414	10,492	15,722	2,777	1,809	1,614	19,845	9,095	10,750	12,569	1,397	5,533	2,321	1,748	1,570
Warm air furnace	18,091	6,684	10,559	593	187	68	13,739	5,738	8,001	4,352	946	2,831	460	65	50
Noncentral heating, with flue	4,559	1,507	2,225	682	120	25	1,770	808	962	2,789	699	1,351	606	108	25
Nonctrl. htng., without flue; or not htd.	1,486	286	964	125	86	25	405	106	299	1,081	180	665	125	86	25
Not reported	470	236	115	42	43	34	337	213	124	135	23	...	42	43	25
YEAR BUILT															
1945 or later	5,123	3,350	690	526	469	88	3,001	2,862	139	2,122	488	586	491	469	88
1940 to 1944	2,943	1,629	627	122	59	506	1,754	1,458	296	1,189	171	366	87	59	506
1939 or earlier	47,847	13,776	27,811	3,485	1,718	1,057	30,655	11,336	19,319	17,192	2,440	9,282	2,890	1,523	1,057
Not reported	1,040	449	460	87	...	44	616	303	313	424	146	147	87	...	44



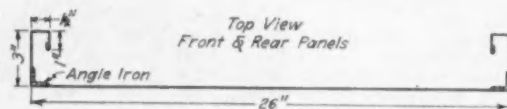
1 GARMENT-HANGING FIXTURES of legless construction hold 160 pieces and take up a minimum of floor space. Each unit is kept upright by an overhead transverse brace at the front and rear

Dry Cleaning Shops Need Sheet Metal Fixtures

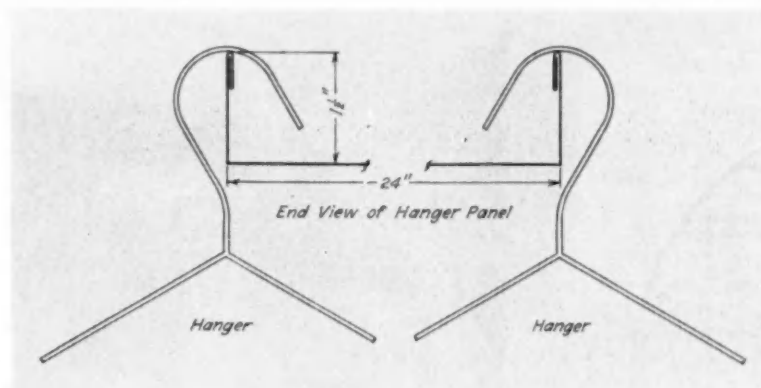
... such as the one described,
which is designed to accommodate a great number of
hanging garments while conserving valuable floor
space and providing easy access to each bag

By Ernest E. Zideck
Sheet Metal Consulting Engineer

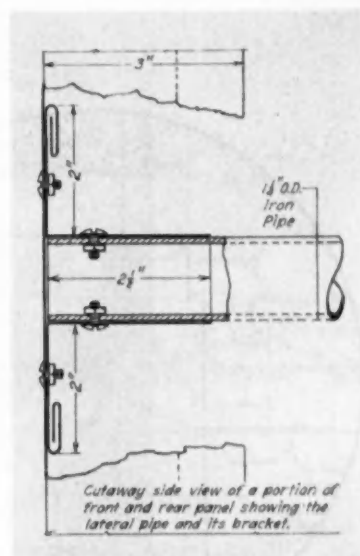
THE GARMENT HANGING fixture detailed in the accompanying drawings is one of a pair fabricated in a local sheet metal shop and put to use in a small garment cleaning store. The store had been crowded with left-over and incoming clothes, hung in decrepit, dust laden, open front closets lining the walls and on racks which barred passage through the room. The fire marshal had warned that the building would be condemned and closed unless it was cleared of this congestion. The



2 FRONT AND REAR panels (top view shown here) are 75 in. high, 26 in. wide. The 3 in. wide sides facilitate bracing of the metal and prevent mutilation of the flanges formed first



3 HORIZONTAL SUPPORT is provided by the hanger panel (above) and the lateral pipe bracket (right)



shop owner heeded the warning by gradually removing the most objectionable old furniture in which clothes were kept and installing, as a start, two metal garment hanging fixtures.

Similar conditions prevail in many cleaning shops in populous sections of cities, where fires would be extremely dangerous. It is probable, therefore, that there will be an increasing demand for fireproof fixtures. The sheet metal fabricator, who is most likely to make the fixtures for such shops, should know the needs of these prospective customers and how he may help in satisfying them.

Important to Conserve Space

Conservation of floor space is the principal requirement in small garment handling stores; wide bases or spread out legs of clothes hanging fixtures take up space. They make it difficult for attendants to walk between the hanging garments and to hang or lift off the heavy paper bags. The average width of the hanger fixtures at the top should be 22 in., to accommodate the shoulder width of the largest coats. Adding outreaching bases or legs to that width would bring the total width of the pre-empted floor space to 46 in., figuring that each leg would occupy 1 ft of space on each side to uphold the tall and heavily laden hanger. There would be no improvement in fixtures so constructed even if they were made of metal or if racks made of welded pipe were substituted, since an excessive amount of floor space would be pre-empted in either case.

A tall man's overcoat, when inserted in a paper bag and hung, requires a space of 5 ft from the floor up and almost 3 in. in depth. As it would be impractical to build special hanging fixtures for tall men's garments only (although that is being done in large stores), the demand is for all-purpose fixtures which can be accommodated to both long and short garments. Since the

garments are hung and lifted from the hook frequently, the hanger should not be too high for easy reach.

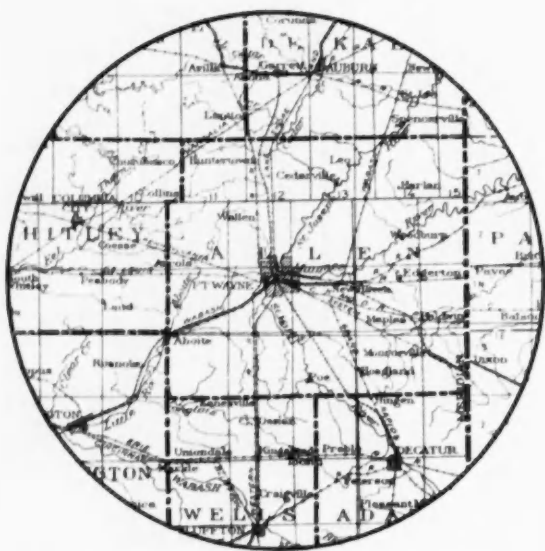
Accommodating the greatest possible number of garments in the fixture without packing and impairing their pressed condition is another important consideration. Obviously the fixture must rest securely upon the floor and be safe from falling over even if unbalanced by unequally distributed clothes or for other reasons. Another consideration is cost. Small stores can use a great many sheet metal structures, but they do not require elaborate or ornate fixtures and they cannot afford expensive ones. Practical, low cost fixtures are the ones which will be ordered.

Construction Aims: Compactness, Strength

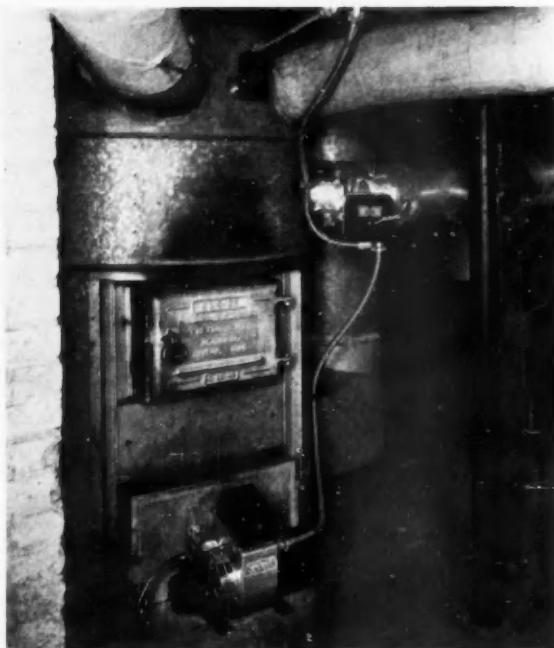
The most important feature of the fixture shown in Fig. 1 is its legless construction, which results in an assembly occupying a space 112 in. by 100 in., allowing a 24 in. passage between the units when clothing is hanging on the two inside racks. Each unit has two rows of hangers 94 in. long. The capacity of the four hangers is 160 bags. Each unit is kept upright and is prevented from tipping over by an overhead transverse brace at the front and rear. To keep the cost at a minimum, galvanized sheets and round pipes are used throughout. All components were completed in the sheet metal shop and assembled at the store.

Front and rear panels are 75 in. high and are formed in the 8 ft brake as outlined in Fig. 2. The face of the panel is 26 in. wide; the sides are 3 in. wide; the flanges, 1/2 in. deep; and the inward flanges 1 in. wide with 1/2 in. lips. The 3 in. wide sides lend a solid appearance to the panels, and facilitate the braking of the metal to shape without hindrance avoiding mutilation of the flanges formed first. The top and bottom flanges are formed to the same dimensions as are the side flanges,

(Please turn to page 95)



WITHIN THIS 25 mile radius around Fort Wayne, which has been found to be an effective merchandising area



MORE AND MORE hand-fired furnaces are being converted to automatic firing because . . .

Dealer Sells the Farm Market

. . . on the benefits of automatic heat.
Farm homes, over 77 per cent electrified,
constitute a large potential market for such
conversions or for the installation of new heating plants

By B. G. Duer

Wayne Home Equipment Co., Inc.

MOST OF THE 1,013,150 centrally heated farm residences in the United States are large rambling structures in which heating plants were installed about 25 years ago. Many of these furnaces are hand-fired because when they were installed, the electric utility companies had not broadened their distribution systems to provide the electricity needed for automatic operation. Now, however, over 77 per cent of all farms are provided with electricity (according to the 1950 Census of Housing, issued by the U. S. Department of Commerce).

The potential for the sale of an automatic warm air

heating system exists in almost all these homes. If the farmer doesn't feel that he wishes to install a completely new heating plant, he then becomes a prospect for the sale of a conversion burner.

One warm air heating firm which has recognized the sales potential in this market and geared its marketing techniques accordingly is Lassus Bros., Fort Wayne, Ind. The company has provided many farm homes in the area with heating comfort.

Newspaper Ads and Direct Mailings Get Leads

It relies upon regular newspaper advertising to develop most of its leads, but direct mailing pieces are used to keep the prospect interested until salesmen call.

(Please turn to page 96)



AVOID "GARBAGE CAN landscaping" with . . .

Indoor Incinerators — a Market for Heating Dealers

The residential indoor incinerator is a "natural" for the heating dealer, since it can be a supplementary sale to customers desiring automatic heating, or can be installed in any home which already has such heating. Various factors are greatly increasing the public's demand for incinerators, providing the dealer with a broad and expanding market

THE HEATING equipment dealer is in an excellent position to take advantage of the mounting popularity of the residential indoor incinerator. Every home with automatic heating is a prospect for an incinerator, and the

incinerator is a good tie-in item on new installations.

These incinerators, which burn wet or dry trash and garbage, are items which a large segment of the population can afford. This means an easy-to-find, broad market. In addition, installation is generally very simple, affording another source of profit to supplement the margin on the basic product. Stocking, display and selling call for a minimum of effort.

Why Incinerator Market is Expanding

Today, most household refuse that must be disposed of is trash burner waste — cartons, sacks, paper, and other combustible items which the sink disposal unit

(Please turn to page 96)

Can Contract Allow for Default Costs?

By Albert W. Gray



Some promissory notes provide that a certain percentage of the principal be added to cover collection costs in case of default. However, the added fee may not be used to increase the holder's profit or merely to penalize the debtor

A PROMISSORY NOTE to the order of a warm air heating dealer in an eastern state contained the provision, "If allowed by law, upon non-payment of this note at maturity, 15 per cent of the amount shall be added if placed in the hands of an attorney for collection." An application to the court to include this additional 15 per cent in the judgment recovered for the unpaid balance of the note was granted.

This same method of reducing collection expenses and legal fees was used by a New England firm in the promissory notes it accepted from customers, which provided for payment of the principal sum "together with all costs and legal expenses for the enforcement and collection thereof, such charges in no event to be less than a sum equal to 20 per cent of the aggregate of the principal and interest unpaid on this note at the time this note is placed in the hands of an attorney for collection."

In upholding this provision as valid and enforceable in a recent decision involving a note of this character, a court said: "It is not unusual for a note to provide for the payment of reasonable fees by the maker in case he fails to pay at maturity and the holder turns it over to an attorney for collection. Reasonable attorney fees have been frequently recovered where the contract between the parties provides for their payment.

Albert W. Gray, author of this article, has had 20 years' experience as an attorney in the courts of New York City. He has written widely on legal matters and is the author of *The Family Legal Adviser*.

"The note called for payment of all costs and legal expenses in an amount not less than 20 per cent of what was due on the principal and interest when it was given to an attorney for collection. The parties to a promissory note may contract for the payment of costs of collection or attorney fees in case the note is not paid at maturity and is turned over to an attorney for collection. They may contract that in such event the holder may recover a reasonable amount for attorney fees or an amount to be fixed by a definite per cent of the principal or the principal and interest then due on the note.

"A stipulation in a promissory note for the payment of 'a reasonable attorney fee' is binding on the maker of the note. In a majority of other jurisdictions, a provision fixing the attorney fee as a certain per cent of the principal or of the principal and interest has been held to be good, at least unless it clearly appears that it is so unconscionable and oppressive as to amount to a penalty or that it is a device to circumvent the usury statutes."

Can't Use Note to Increase Profits

The courts, however, will not allow a contractor to insert a provision of this character in the notes given under an air conditioning or warm air contract to increase the profits or for the collection of a greater interest on delayed payments than is permitted by law.

In a lawsuit in a western state some years ago, a promissory note provided for the payment of the principal sum with interest "and also attorney fee." The supreme court of the state said in its decision:

"Agreements to pay attorney's fees in promissory notes are valid and enforceable. Such agreements, however, are in the nature of indemnity contracts and the holder can only recover thereunder such sums as he has actually and necessarily expended or become liable for on account of the default of the maker.

"It is only where the holder of a note necessarily incurs a liability for attorney fees in its collection that the maker becomes liable under such an indemnity stipulation, and such a necessity can never arise except by the maker's failure to pay at maturity.

"If the maker performs his agreement no liability will be incurred, and he should not complain at the enforcement of an agreement against him which he could avoid by the performance of his contract.

"In view of these observations it must be held that the agreement to pay attorney fees covers the fee of

an attorney for the collection of a note made necessary by the default of the maker, whether suit is brought or not."

Attorney's Fee Not a Penalty

A suit for the recovery of legal expense of this character on notes providing for the payment of a 10 per cent attorney's fee was brought in another state and later came before an appeals court for decision. That court, asserting that such a provision for the payment of attorney's fees was valid and enforceable, said:

"Of course if it should appear that a particular provision were used as a mere cloak for usury or that the provision were for so large an amount or were of such a character as to show an intention to provide a mere penalty for nonpayment, a different question would be presented and it might well be condemned as in conflict with the well settled policy of the law.

"But where the provision is reasonable in amount and legal services are required and are actually rendered in the collection of the instrument, we can think of no consideration of public policy which should condemn it.

"In such a case it is properly viewed not as a provision for additional interest exacted of the buyer for the use of the money or as a provision for a penalty imposed upon him for breach of his contract, but as a provision for indemnifying the seller for the expense to which he may be put by reason of the buyer's default.

"Where there is such a default, the attorney fees incurred in making collection may well exceed the interest collected, and no considerations of public policy require that this loss fall upon the seller rather than the buyer, whose default has occasioned the loss.

"The question is not a new one but has been repeatedly before the courts, and the overwhelming weight of authority is with the view expressed herein, being sustained by decisions in 27 states."

Fee Stipulation Based on Contract Rights

Suggestions for the employment of this means for the curtailing of collection expenses were made by a federal court in one of the earliest decisions involving this phase of the law. The court said:

"This question is comparatively a new and vexed one. It has mostly arisen in actions upon promissory notes containing a stipulation for the payment of a fixed sum or percentage as an attorney fee to the note holder in case an action is brought to collect the same. And the objection to the stipulation usually is that such stipulation makes it usurious and therefore void in whole or in part.

"A statute which simply provides that the holder of a note may recover interest on money overdue at a certain rate does not preclude parties from agreeing that a different rate may be recovered under like circumstances; and if the borrower and lender (in the absence of a statute to the contrary) may agree upon any rate of interest for the use or detention of the loan, it is not apparent why they may not agree upon the pay-

ment of an attorney fee in case the latter is required to collect the same by law.

"However, borrowers and lenders seldom deal on equal terms, and the necessities of the former often constrain them to accede to terms and conditions which are oppressive in the vain hope that they will be able to meet their engagements promptly and thereby avoid the payment of the charges and penalties stipulated for in case of failure.

"It would then be better if these stipulations were not made for a fixed sum or percentage but rather for such sums as the court under all the circumstances might judge reasonable and right. In this way regard might be had to the nature and value of the services actually rendered by the attorney.

"But after all, the right of the parties (in the absence of a statute to the contrary) to contract for the payment of a reasonable attorney fee by the maker of the note in case the holder is put to the expense of collecting his debt by law rests upon the same ground as the right to make any other contract not prohibited by law or against public morals."

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]

MARKETING DATA FOR HEATING DEALERS

INFORMATION which can help warm air heating dealers and sheet metal contractors to direct their selling efforts is given on pages 66 and 67. Data for areas other than those listed this month has been published in earlier issues of American Artisan and can be found as follows:

City	Month	Page
Baltimore	October	74
Birmingham, Ala.	August	70
Bridgeport, Conn.	May	81
Cleveland	October	74
Dallas	July	79
Des Moines, Iowa	August	71
Detroit	August	71
Evansville, Ind.	May	81
Fall River, Mass.	June	73
Flint, Mich.	November	70
Fort Wayne, Ind.	May	81
Fort Worth, Tex.	August	71
Greensboro, N. C.	May	81
Greenville, S. C.	November	70
High Point, N. C.	May	81
Lincoln, Neb.	November	71
Los Angeles	July	78
Milwaukee	October	75
Minneapolis	July	79
New Britain, Conn.	November	71
Phoenix, Ariz.	November	71
Pittsburgh, Pa.	November	71
Reading, Pa.	June	73
Rockford, Ill.	June	73
Sacramento, Calif.	August	70
St. Paul, Minn.	July	79
Savannah, Ga.	July	78
Seattle, Wash.	June	73
Shreveport, La.	October	75
Spokane, Wash.	October	75
Syracuse, N. Y.	July	79
Toledo, O.	September	78
Wichita, Kans.	October	75
Wilmington, Del.	August	71
Worcester, Mass.	July	79



CHAIRMAN OF THE Board of Warm Air Heating Contractors of Georgia, John G. Mauldin (left), checks a problem with Lee Roy Godowns of Augusta (center), who is applying for a qualifying certificate. Laurence F. Kent (right), secretary of the board, helps administer the examination

Experience Shows Advantages of Statewide Heating Code

. . . in Georgia, where heating men
regulate themselves, protect the home owner
through a program of qualifying examinations
and follow-through investigations

By Parker Lowell

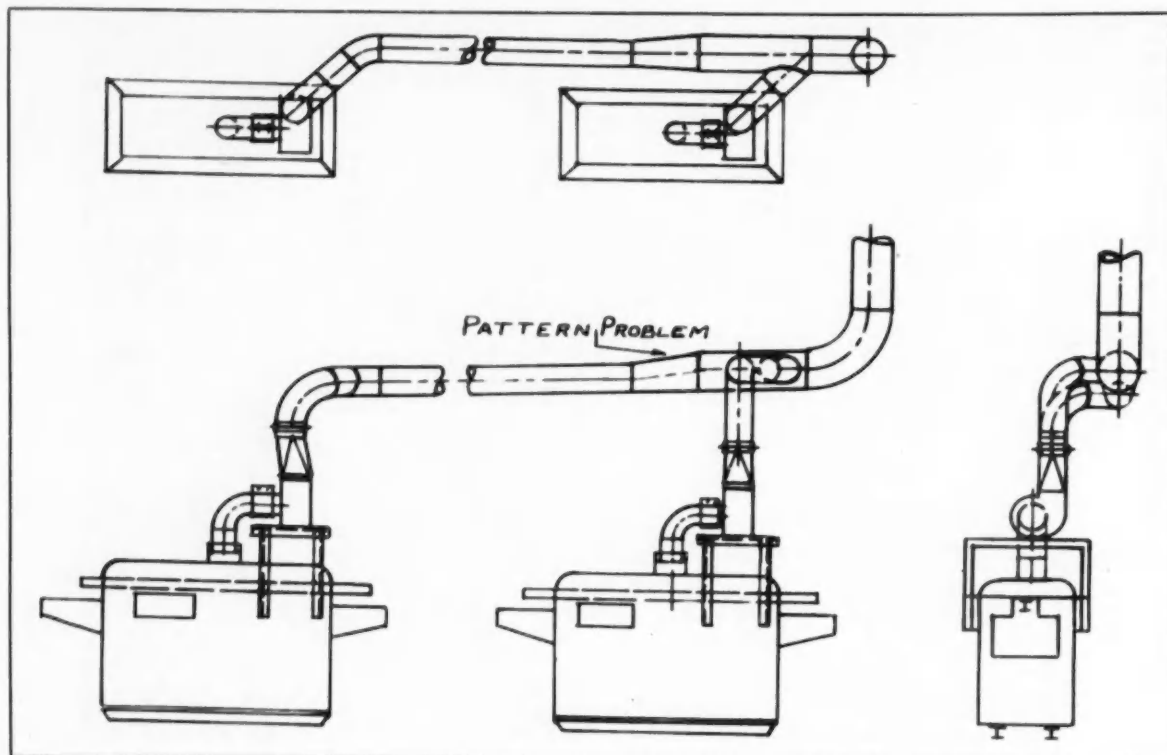
A STATEWIDE HEATING code has been in operation in Georgia for almost five years. In that period, the code has proved advantageous to both heating contractors and the public, according to the Board of Warm Air Heating Contractors of Georgia. In addition, the machinery set up to implement and enforce the code has provided effective regulation. Be-

cause of the several years of experience with the code, a review of its provisions will be of general interest to warm air heating men in other states.

The uniform set of performance standards provided by the code has made it easier to secure mortgages for modernization work in old as well as new homes and has resulted

in lower fire insurance rates. The code has also eliminated out of date local regulations no longer applicable to modern heating equipment; it permits modifications of current regulations which keep the entire state up to date on national heating practices.

The original purpose of the code was the elimination of such hazards



1 WASHER EXHAUST SYSTEMS of this type (plan view, *top*; front view, *left*; end view, *right*), in which air has a high moisture content, require a duct section such as the one described

HUGH REID'S SHEET METAL PATTERN

Making Tapered Duct Section With One Straight Side

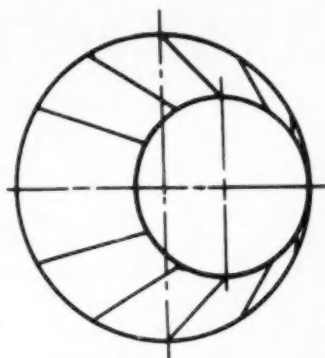
. . . designed to prevent water pockets
that might occur in washer exhaust systems

FIG. 1 shows an industrial hot, cold water rinse washer exhaust system. In the design of a system of this type in which the air has a high moisture content, accumulation of water in the ducts must be prevented.

When two or more pieces of equipment are reasonably close together, consideration is given to exhausting them into a common stack. This eliminates roof openings which always necessitate costly framing, curbing and waterproofing. The exhaust duct is installed slightly pitched toward the washer and all seams on the horizontal run will be against the air flow; the joints should be on

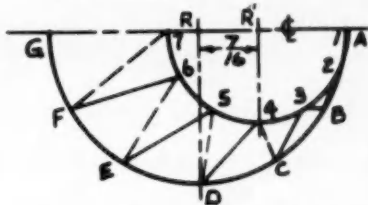
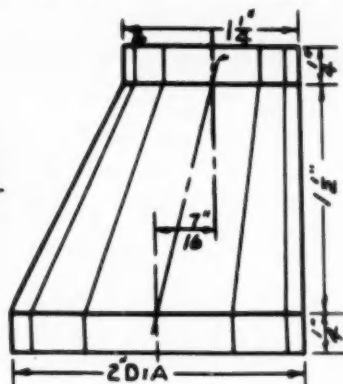
the side or top of the duct. This installation is designed for maximum drainage and minimum leakage.

A 1 in. hole is drilled in the bottom of the fan and a 1 in. pipe is connected from the fan to the washer for drainage. A draw band connection should be installed at the inlet end of the fan and an angle ring connection close to the outlet end; this will provide for ready access for fan inspection and maintenance. Any taper, Y branch, or square to round fittings in the horizontal duct run must be straight on one side and installed as shown by the offset taper fitting in Fig. 1. This will prevent water

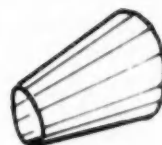


SECTION AA

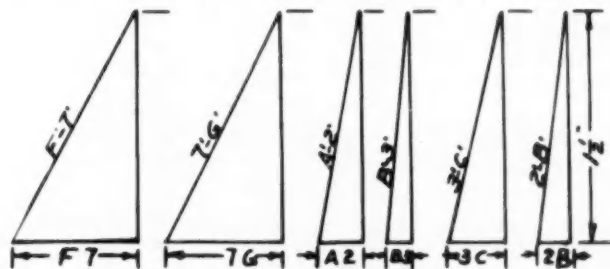
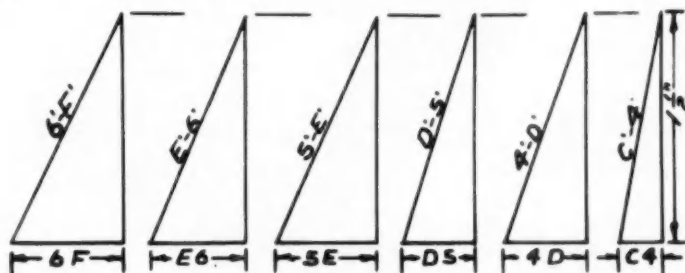
2 A TAPERED DUCT straight on one side (plan view, left; front view, right) provides maximum drainage



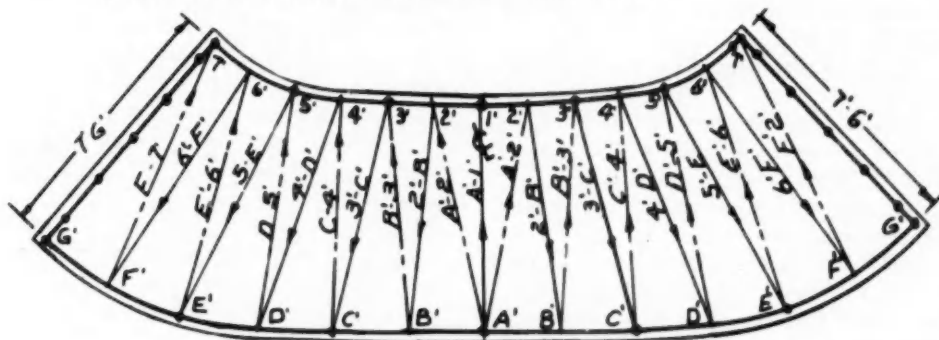
3 DIMENSIONS DEVELOPED in this simplified method drawing of the half plan . . .



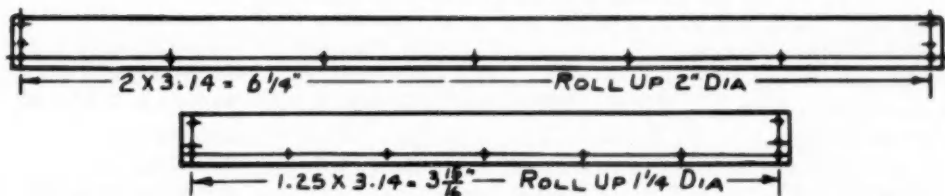
PICTORIAL DRAWING



4 AND TRUE LENGTH LINES formed from them . . .



5 ARE USED IN DEVELOPING the taper pattern



6 COLLAR PATTERNS are developed by drawing rectangles whose long sides equal the circumference and short sides equal the given length of the collars

pockets that would occur if a symmetrical taper or other type symmetrical fitting was used in a similar position in the duct system.

The following is a step by step solution to the problem:

To Construct Simplified Drawing, Fig. 3:

(a) Draw the horizontal center line marked CL, establish the point G and from this point measure the given 2 in. diameter and mark the point A.

(b) From point A, measure the radius of the small end of the taper, which is $\frac{5}{8}$ in., and mark the point R'. From point A, measure the radius of the large end of the taper, which is 1 in., and mark the point R.

(c) With point R' as center and radius $\frac{5}{8}$ in., draw a half circle. With R as center and radius 1 in., draw a half circle. Divide the small half circle into six equal spaces and mark the points 1, 2, 3, 4, 5, 6, 7. Divide the large half circle into six equal spaces and mark the points A, B, C, D, E, F, G.

To Lay Out Taper Pattern, Fig. 5:

(a) Working from Fig. 3, set a compass at a radius equal to one of the equal divisions on the half circle with the $\frac{5}{8}$ in. radius and set a second compass at a radius equal to one division on the half circle with the 1 in. radius.

(b) Draw a vertical line and mark it CL. Establish a point near the bottom on this line and identify the point as A'. Measure $1\frac{1}{2}$ in. up the center line from A' and establish another point; identify this point as I'.

(c) Draw a right angle. From the simplified method half plan drawing marked Fig. 3, transfer distance A-2 to the horizontal leg and measure $1\frac{1}{4}$ in. on the vertical leg. The hypotenuse line A'-2' is the true length line. With A'-2' as radius and point A' on Fig. 5 as center, draw arcs on both sides of center line A'-I'. With the small end compass setting as radius cut radius arcs A'-2' and mark the points 2'.

(d) From Fig. 3, transfer line 2-B to the horizontal leg of a right angle and measure $1\frac{1}{2}$ in. on the vertical leg; the hypotenuse 2'-B' is the true length line. With points 2' on Fig. 5 as centers and radius 2'-B' as radius, draw arcs. With A' as center and distance G-F from Fig. 3 (large end compass setting) as radius, cut the arcs 2'-B' and mark the points B'.

(e) Distance B-3 is transferred from Fig. 3 to the horizontal leg of a right angle and perpendicular length $1\frac{1}{2}$ in. to the vertical leg. The hypotenuse line B'-3' is the true length line. With points B' on Fig. 5 as centers and radius B'-3', draw arcs. With the small end compass setting as radius and points 2' as centers, cut the arcs and mark the points 3'.

(f) On a right angle, measure $1\frac{1}{2}$ in. on the vertical leg and transfer line 3-C from Fig. 3 to the horizontal leg. The hypotenuse line 3'-C' is the developed line. With points 3' as centers and radius 3'-C', draw arcs. With the large end compass setting as radius and points B' as centers, cut the arcs 3'-C' and mark the points C'.

(g) Line C-4 is transferred from Fig. 3 to the hori-

zontal leg of a right angle and a $1\frac{1}{2}$ in. height is measured on the vertical leg. The hypotenuse C'-4' is the true length line. With points C' on Fig. 5 as centers and radius C'-4' draw arcs. With the small end compass setting as radius and points 3' on Fig. 5 as centers, cut the arcs and mark the points 4'.

(h) Measure $1\frac{1}{2}$ in. on the vertical leg of a right angle and transfer line 4-D from Fig. 3 to the horizontal leg. The hypotenuse line 4'-D' is the developed line. With points 4' on Fig. 5 as center and radius 4'-D' draw arcs. With the large end compass setting as radius and points C' as centers, cut the arcs and mark the points D'.

(i) Line D-5 on Fig. 3 is the horizontal leg of a right angle and a $1\frac{1}{2}$ in. length is the vertical leg. The hypotenuse line D'-5' is the developed line. With points D' on Fig. 5 as centers and radius D'-5', draw arcs. With points 4' on Fig. 5 as centers and the small end compass setting as radius, cut arcs D'-5' and mark the points 5'.

(j) Draw a right angle. On the vertical leg measure $1\frac{1}{2}$ in.; from Fig. 3 transfer distance 5-E to the horizontal leg of the right angle. The hypotenuse line 5'-E' is the developed line. With points 5' on Fig. 5 as centers and radius 5'-E', draw arcs. With the large end compass setting as radius and points D' on Fig. 5, as centers, cut the arcs and mark the points E'.

(k) On a right angle, the combination of a $1\frac{1}{2}$ in. height on the vertical leg and line E-6 transferred from Fig. 3 to the horizontal leg will produce the developed hypotenuse line E'-6'. With radius E'-6' and points E' on Fig. 5 as centers, draw arcs. With points 5' on Fig. 5 as centers and with the small end compass setting as radius, cut arcs E'-6' and mark the points 6'.

(l) Transfer line 6-F from Fig. 3 to the horizontal leg of a right angle and measure $1\frac{1}{2}$ in. on the vertical leg. The hypotenuse 6'-F' is the developed line. With points 6' on Fig. 5 as centers and radius 6'-F', draw arcs. With the large end compass setting as radius and points E' as centers, cut the arcs and mark the points F'.

(m) Line F-7 is transferred from Fig. 3 to the horizontal leg of a right angle and $1\frac{1}{2}$ in. is measured on the vertical leg. The hypotenuse F'-7' is the developed line. With points F' on Fig. 5 as centers and radius F'-7', draw arcs. With points 6' on Fig. 5 as centers and with the small end compass setting as radius, cut arcs F'-7' and mark the points 7'.

(n) Transfer line 7-G from Fig. 3 to the horizontal leg of a right angle and $1\frac{1}{2}$ in. on the vertical leg; the hypotenuse line 7'-G' is the true length line. With points 7' on Fig. 5 as centers and radius 7'-G', draw arcs. With the large end compass setting as radius and points F' as centers, cut the arcs 7'-G' and mark the points G'.

(o) Through the developed points draw the pattern outline, add allowances for seams and joints, lay out the holes, and mark the pattern for forming.

The stretch-out for the collar patterns is calculated by multiplying the respective diameters by 3.14. The patterns are developed by drawing rectangles whose long sides equal the circumference and short sides equal the given length of the collars.

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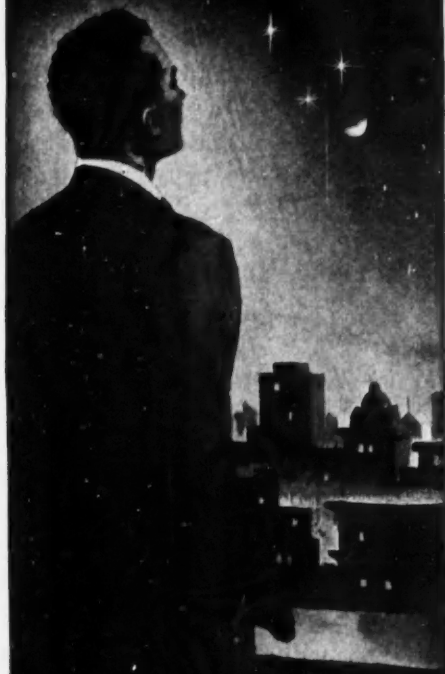
Position

Firm

Street

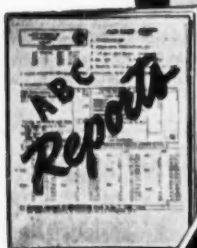
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Oh! **WHERE**... *is my wandering ad tonight?*



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Paid subscriptions and renewals, as defined by A.B.C. standards, indicate an audience that has responded to a publication's editorial appeal. With the interests of readers thus identified, it becomes possible to reach specialized groups effectively with specialized advertising appeals.



THERE are two ways to buy advertising space. One is the guesswork-opinion method. The caption above is the mournful song of an advertiser who is still selecting media the way it was done before World War I, when there were no standards for the circulations of published media and when there was no accepted and approved method of auditing circulations. In those days, advertisers O.K.'d their proofs and sent out their advertising with a prayer that some of their sales messages would find their way to market.

The other way to buy space is the factual, know-what-you-get-for-your-money method. Today advertisers can start their investments on a basis of facts by selecting media with the help of the information in the reports issued by the **AUDIT BUREAU OF CIRCULATIONS**. This cooperative and nonprofit association of 3300 advertisers, advertising agencies and publishers, organized in 1914, has established standards that make it possible to evaluate the circulations of published media. The A.B.C. maintains a large staff of experienced and specially trained circulation auditors who make annual audits of the circulations of publisher members. A.B.C. reports give the facts thus obtained.

Here are some of the audited facts about business papers that A.B.C. reports tell the advertiser:

- how much paid circulation;
- how much unpaid;
- an occupational or business breakdown of subscribers;
- where they are located;
- how much subscribers pay;
- whether or not premiums are used;
- how many subscribers are in arrears;
- what percentage of subscriptions are renewed.

Those who buy advertising on the basis of this factual information, as given in A.B.C. reports, do not have to speculate about the distribution of their sales messages. They **KNOW** where and to whom their advertising goes. That is why this business paper is a member of the **AUDIT BUREAU OF CIRCULATIONS**. Ask for a copy of our A.B.C. report and then study it.

AMERICAN ARTISAN

A.B.C. REPORTS—FACTS AS THE BASIC MEASURE OF ADVERTISING VALUE



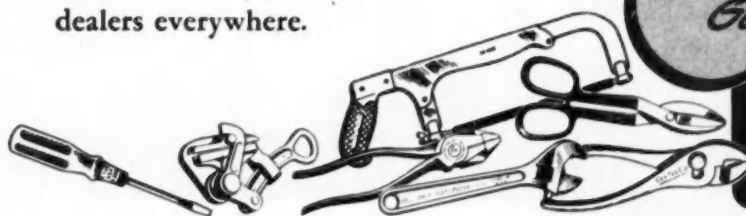
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CRESTOLOY Wrenches are forged from a special alloy steel permitting thinner, trimmer design with greater strength and less weight than conventional adjustable wrenches. Their chrome plate finish is as durable as it is handsome. Choose CRESTOLOY Wrenches for outstanding performance in the toughest kind of service. Sold by hardware dealers everywhere.

8 SIZES IN SINGLE & DOUBLE END TYPES

Number	Size	Capacity
AC14	4"	1/2"
AC16	6"	3/4"
AC18	8"	1 5/16"
AC110	10"	1 1/8"
AC112	12"	1 5/16"
AC115	15"	1 11/16"
AC118	18"	2 1/16"
AC124	24"	2 7/16"
BC146	same as 4" and 6" above	
BC168	" 6"	" 8"
BC1810	" 8"	" 10"
BC11012	" 10"	" 12"



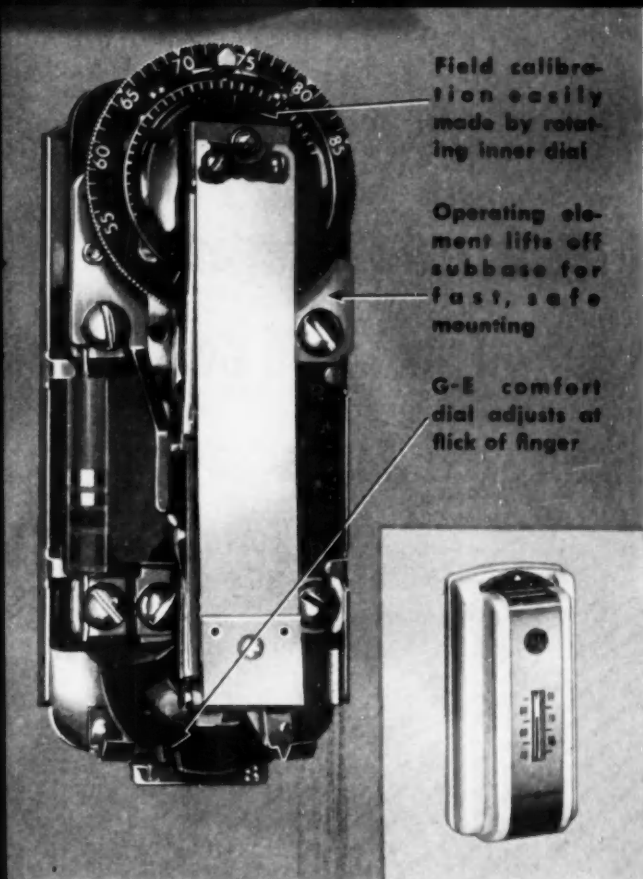
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G-E THERMOSTAT special subbase makes mounting easier. New comfort dial gives user control over heating cycle.



G-E FAN AND LIMIT CONTROL mounts at any angle, includes summer switch. Steam or hot water unit switches also available.

These 3 Basic G-E Controls Handle Any Warm-air System

The General Electric basic package of new oil-burner controls speeds installation, saves you costly service calls because no leveling is needed. Here are all the necessary components for a complete warm-air control system:

G-E MASTER CONTROL with helix for regular stack mounting. Use it with any oil burner. No leveling, no adjustments, no call-backs. Just install it and forget it!

G-E THERMOSTAT designed and built for long-time customer-satisfaction. Easy to mount, easy to wire, easy to adjust. With the G-E Thermostat you get far less nuisance complaints . . . less profit-eating call-backs.

G-E FAN AND LIMIT CONTROL for warm-air furnaces means quick, easy installation, all-angle mounting, dependable operation. No leveling needed. Mechanical interlock prevents cycling on limit switch without fan operation.

YOU CAN HANDLE any normal warm-air oil-burner installation with this package of G-E oil-burner controls. And if you're installing a hot water or steam system, the proper G-E limit switch is also available. Each G-E oil-burner control is designed for quick, easy installation. Once it's installed, you can count on dependable operation. You'll never have to make a call-back to level or adjust because there are no mercury switches used and each control is preadjusted at the factory.

FOR COMPLETE INFORMATION about G-E oil-burner controls, contact your nearby G-E Apparatus Sales Office today. Or write for bulletin GED-1837. Address Section 740-27, General Electric Company, Schenectady 5, N. Y.

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48" Wide Embossed Industrial Corrugated

...For Lower Installed Cost,
Improved Appearance!



All the advantages that have made Reynolds Aluminum Industrial Corrugated a sweeping success throughout industry...rust-proof permanence, lowest maintenance, high insulation...now at even lower installed cost and with improved appearance! With these new 48" sheets, side laps take 30% less metal, 30% fewer fasteners...and there are 30% fewer sheets to handle. With the new stipple-embossed finish, the wider-spaced laps tend to disappear...making a handsome, uniform, textured effect. Call on Reynolds for literature, technical and application details.

Offices in principal cities. Check your classified phone book for our listing under "Building Materials." Or write Reynolds Metals Company, Building Products Division, 2046 South Ninth St., Louisville 1, Kentucky.

DESCRIPTION:

METAL THICKNESS: 0.032 inch (22 U.S. Std. Ga.)

FINISH: Embossed.

LENGTHS: 5', 5' 6", 6', 6' 6", 7', 7' 6", 8', 8' 6", 9', 9' 6", 10', 10' 6", 11', 11' 6", 12'. (Special lengths cut to order subject to inquiry.)

WIDTH: Over all width 48½", nominal coverage 45½", 1½ corrugations side lap.

CORRUGATION: Pitch 2.667" center to center, depth ⅞", 18 crowns, 18 valleys, one edge up, opposite edge down.

WEIGHT: 56 pounds per 100 square feet of formed sheet.

Standard .032" mill finish Industrial Corrugated also available—35" width, same lengths as above.

REYNOLDS *Lifetime* ALUMINUM INDUSTRIAL CORRUGATED

See "Mister Peepers," starring Wally Cox, Sundays, NBC-TV Network.

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**Year-Round Air Conditioning
Installations for Homes ANYWHERE**

*Warm Air
Furnaces . . .
Refrigerated-Air
Home Coolers*

With Niagara's extensive lines of gas, oil and coal furnaces and electric cooling units you can ideally meet the requirements for year-round air conditioning in **any** home — **anywhere**. By combining a Niagara home-cooling unit with any Niagara forced air furnace you provide the home owner with circulating warm air in the winter and circu-

lating cool, dehumidified air in the summer. This is the most simple, most economical, most effective way of providing **year-round** air conditioning.

To meet air conditioning requirements for any home, Niagara gives you:

For Homes with Basements • GAS-FIRED FURNACES • For Homes without Basements



Series 50 AC
CAST IRON



Series 40 AC
STEEL

Niagara Series 50 furnaces are equipped with the exclusive Niagara cast-iron heat exchanger, famous for dependable long-time operation with low gas bills. Deluxe Series 50 AC models have 3-speed direct-drive blower — standard models, single-speed, belt-drive blower. Also available in

gravity models. Sizes range from 75,000 to 180,000 BTU input. Niagara Series 40 furnaces have exclusive Niagara-made alloy steel heat exchangers. Blower-filter unit of AC models may be installed on either side (shown above at left side of heating unit). Also available in gravity models. Sizes from 60,000 to 140,000 BTU input.

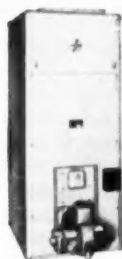


Series 40 DFAC
Down-Flow



Series 40 VAC
Hi-Boy

The series 40 line of high-boy winter air conditioners includes down-flow types for perimeter heating systems, and conventional up-flow units. Exclusive Niagara-made alloy steel heat exchanger. Sizes from 50,000 to 115,000 BTU input.



Model
60-75 DFAC



Model
60-75 VAC

OIL-GAS CONVERTIBLE: For Homes with or without Basements

Designed for the economical use of oil, Niagara Series 60 convertible furnaces are exceptionally compact and can easily be converted to gas when desired — with a Niagara gas conversion burner. Equipped with exclusive Niagara-made steel heat exchanger of new, space-saving, rectangular design. Line includes vertical down-flow and up-flow complete winter air conditioners.

The blower-filter unit of 60 AC models may be installed on either side. Gravity models also available.

Series 30 furnaces are complete winter air conditioners of the basement or "low-boy" type. Deluxe models have 3-speed direct-drive blowers; standard, single-speed, belt-drive. Sizes from 105,000 to 210,000 BTU.



Model 60-75 AC



Series 30 AC

Coal-Fired Furnaces

Efficient, durable cast-iron Niagara coal furnaces are available in three styles: Square cabinet and round casing gravity furnaces, and rectangular forced-air furnaces.



Coal-Fired
Forced-Air



Coal-Fired
Gravity

. . . and Summer Air Conditioning in its Most Effective, Economical Form

Niagara refrigerated-air Home-Cooling Units make the supreme comforts of year-round air conditioning practical and economical in all homes that are heated by forced-air systems. The units are designed to use the blower, filter and ductwork of the heating system for the distribution of cooled air in the summer. Units of 2-ton and 3-ton capacity occupy less than 6 sq. ft. of floor space.

Write for the complete Niagara story — the outstanding money-making and prestige-building lines for heating contractors.

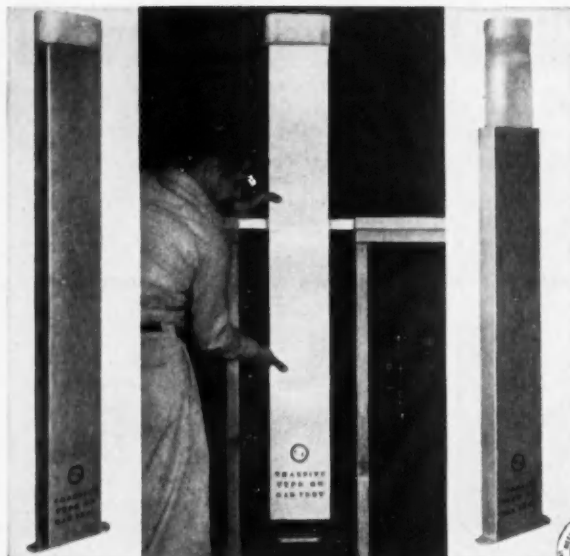


Niagara Cooler
NC-2

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THE FOREST CITY FOUNDRIES COMPANY
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Paired for peak performance in venting gas-burning appliances



New Johns-Manville Transite Type B-W Gas Vent for recessed wall heaters

New to the Transite® Gas Vent line, Transite B-W Gas Vent is designed to improve the venting of recessed wall heaters as well as to cut installation costs. Approved by the Underwriters' Laboratories, Inc. for $\frac{1}{8}$ " minimum clearance, it can be installed in standard wall construction without furring.

Transite B-W Gas Vent consists of an asbestos cement oval vent pipe combined with an outer aluminum jacket. It is rustproof, strong and resilient . . . withstands normal rough handling on the job. Corrosion-resistant—cannot rust.

As illustrated above, Transite B-W Gas Vent is available with either round or oval bell end for ready connection to Transite Type B Gas Vent.



Johns-Manville Transite Type B Gas Vent for other home gas-fired units

Transite Type B Gas Vent has been the Industry's standard flue pipe for venting domestic gas appliances. Made of asbestos cement, it cannot rust. Tough and durable, it will not deform. Its combination of ruggedness and light weight simplifies handling, speeds installation and requires only minimum bracing.

Included in codes of cities from coast to coast, Johns-Manville Transite Flue Pipe is the only pipe that has been continuously listed by Underwriters' Laboratories since 1932 for use as a vent pipe for domestic gas-burning equipment.

As illustrated above, Transite B-Type Gas Vent is available in oval and round pipe and fittings that make it suitable for varied venting requirements.

For further information, write to Johns-Manville, Box 60, New York 16, N. Y.
In Canada, 199 Bay Street, Toronto 1, Ontario.



Johns-Manville TRANSITE GAS VENTS

Another J-M product—Transite Warm Air Duct

The permanent duct for modern perimeter heating. Widely used for loop and radial systems. Comes in long lengths, combines strength with light weight. Easy assembly . . . simplified handling . . . speedy installation . . . saves money! No supports, no anchoring, complete encasement in concrete not required. Literature on request.



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Delco Motors

Longer, more dependable service wins more customers. And that is the biggest reason why leading manufacturers of heating and ventilating equipment choose Delco motors for oil burners and blowers . . . why smart dealers replace with Delco.

Delco selects materials carefully and builds its motors with painstaking attention to every detail. Delco motors have precise dynamic balance . . . special features such as uniflow pressure-cast rotor conductors, steel backed tin babbitt sleeve bearings, cored oil wells, and varnish-dipped and baked motor windings add extra endurance for long, trouble-free service.

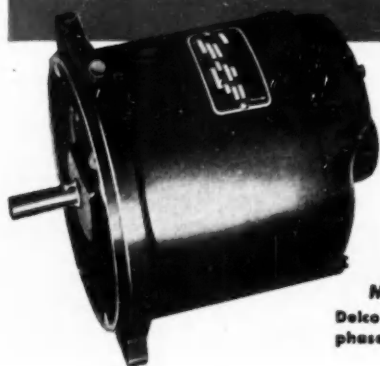
You will find the right motors for your products in the great Delco line. For information on any application, address: Delco Products, Dayton 1, Ohio, or our nearest sales office.



MOTORS FOR BLOWERS

Delco resilient-mounted motors, split-phase and capacitor-start types, single- and two-speed designs, $\frac{1}{8}$ - to $\frac{3}{4}$ -horsepower ratings.

THE BEST RUNNING MATE YOUR PRODUCT CAN HAVE



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Another Case of

Copper

Where it Counts

UTICA STATE HOSPITAL

(Medical and Surgical Bldg.)

Utica, N. Y.

New York State Dept. of Mental Hygiene—Newton J. Bigelow, M. D., Commissioner

There's copper, copper, everywhere on this new hospital building. Note particularly, that copper covers the spots where trouble-free performance counts most. For copper is the metal that has proven its worth down through the centuries. As a result, when architects design structures such as this they turn to the metal they know they can trust... copper. There is not another single metal or alloy, old or new, that has all of the desirable construction characteristics of copper. There is not another metal or alloy that has been in use so long or has become so universally accepted.

Other valid reasons why copper is preferred for flashing and roofing are: Copper is easy to bend and form into any desired shape and thus lends itself to every type of design. Its soldering properties are unmatched. It is non-rusting. It costs less per year of service. It grows old gracefully, taking on an attractive patina with use.

Protect your reputation. Keep out of trouble with copper. See the Revere Distributor near you about Revere Sheet, Strip and Roll Copper. Particularly ask him about the money-saving advantages of Revere-Keystone Thru-Wall Flashing* and the new Revere-Keystone 2-Piece Cap Flashing.** If you have technical problems, your Revere Distributor will put you in touch with Revere's Technical Advisory Service.

*Patented **Pat. Pend.

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COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

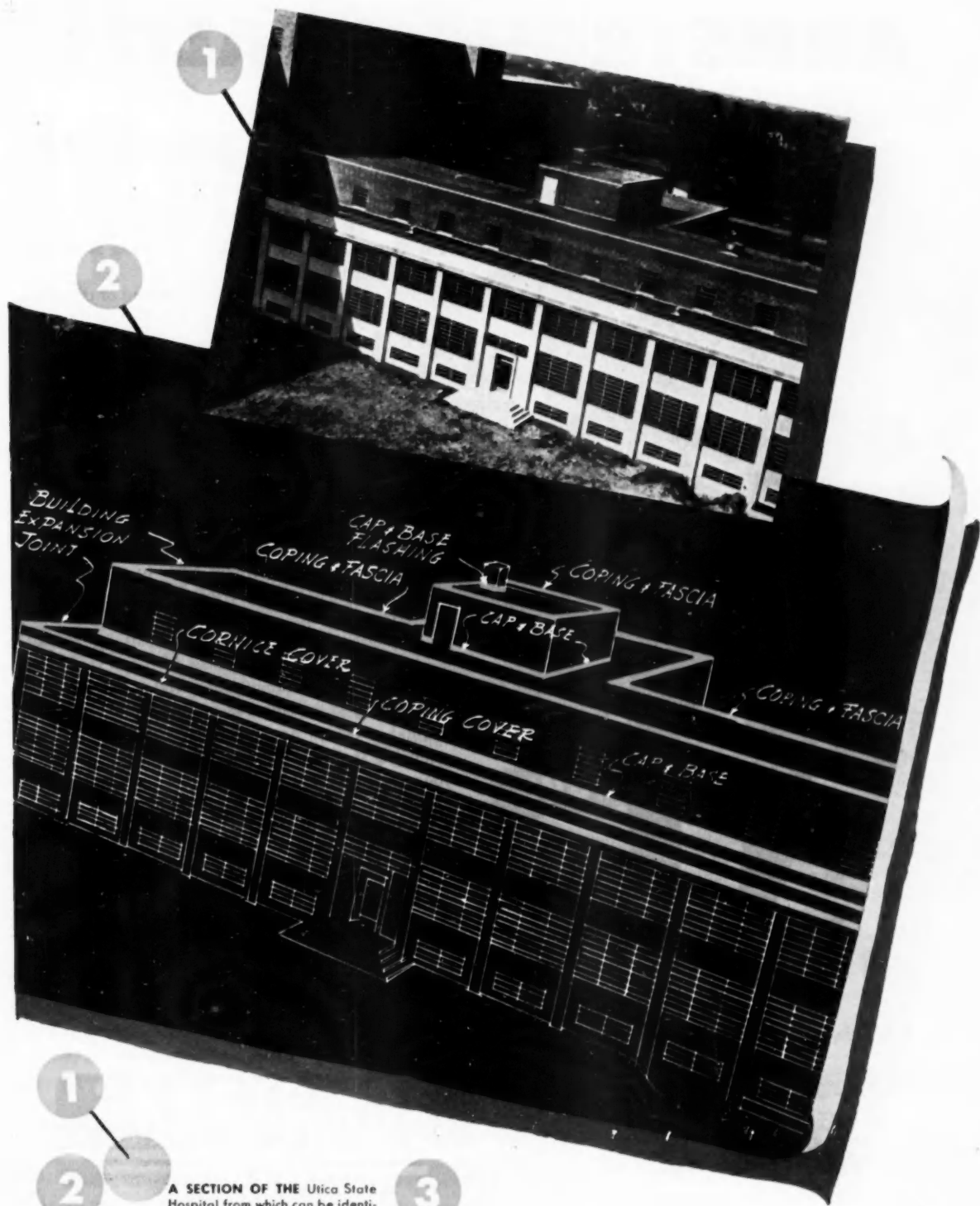
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A SECTION OF THE Utica State Hospital from which can be identified in drawing below, the many vital spots where Revere Copper is used.

60,000 LBS. of 16 oz., Revere Lead Coated Copper and 16, 20 and 32 oz. Soft and Cold Rolled Revere Plain Copper were used on this Medical and Surgical Building.

THE FLAT SEAM ROOFS over the canopies are also of non-rusting, enduring Revere Copper.

ARMSTRONG QUALITY

puts money in your pocket



The *extra* money we put into Armstrong furnaces bears dividends for you.

You can figure *gross* profit at the end of the day you sell any furnace. But it's in your annual figures that the real profit — the *net* — shows up. The *net* profit is the money you put in your pocket. The *gross* melts away fast when you have installation troubles, when assembly time is long, when free adjustment and service are excessive, and when deterioration is rapid.

What *is* quality? Much of it is hidden. You never really see it; it has to prove itself. And it does, in Armstrong furnaces. It shows up in durability, in efficient operation, in complete customer satisfaction. Its value comes back to you by reducing your costs *after* the sale — the costs which cut your *net* profit.

For instance, why does the Armstrong finish hold up so well? For a number of reasons. After cabinet panels are formed, the metal is thoroughly heat-cleaned to provide a surface which "grips" the enamel — leaves no cracks or pin-holes. Then enamel is sprayed on both sides (not just the side your customer sees), and baked on. Then the finished job is critically inspected. That type of care is used in every step of the manufacture of every Armstrong furnace.

Yes, it's costly to us . . . but it's profitable to you.

Armstrong distribution, too, is designed with dealer profit as a keystone. Ask your nearby Armstrong wholesaler for as pretty a profit picture as you'll ever see.



Armstrong's two huge plants serve both sides of the continent quickly, economically. A warehousing distributor, with a complete Armstrong inventory, is within a stone's throw of everywhere. Wherever you are, Armstrong's distribution system is set up to serve you. It's better, quicker, more profitable . . . for you.

Please address Dept. AA at our plant nearest you.



Warm-Air Furnaces—Gas, Oil, Coal—A Complete Line

STARTLING **BRAND NEW** MODEL

TITUS

HIGH EFFICIENCY

Perimeter Diffuser

FOR COOLING and HEATING



Let's be completely frank about this important business of diffuser selection. There is only one reason for using TITUS DIFFUSERS...

THEIR DIFFUSION EFFICIENCY AND AIR DELIVERY CAPACITY FOR BOTH COOL AND WARM FORCED AIR IS ABSOLUTELY SO SUPERIOR, NO BASEBOARD REGISTER CAN COMPARE.

UNBEATABLE LOW PRICE

Price is down... way down. There is no lowering of quality or performance. These diffusers can give you the contract against all kinds of price cut bidding, because they can handle more air per unit cost. They look better, are constructed better and absolutely outperform competition.

The coupon below is mighty important. It brings you all of the performance data facts on this amazing new design Titus diffuser. Get these facts now.

NEW PERFORMANCE

Baffles force cool air to higher room levels. Eliminate low level stratification while maintaining an improved low volume spread for heating.

NEW ADDED FREE AREA

Approximately 7 inches additional free area to each model. Totals 33 inches for Model #100... 19 inches for Model #50.

NEW STYLING

All models lower and narrower. Blend perfectly with contours of room and baseboard. Recess in

baseboard to allow better furniture placement and drape movement.

NEW—ONE BOOT SIZE

12"x 2 1/4". Fits both Model #50 and #100.

NEW BAFFLE DESIGN

Eliminates turbulence. Directs air where it is most needed with a decreased pressure loss.

NEW REINFORCED DESIGN

Strengthens diffusers without adding bulk. Will withstand floor level abuse.

Free NEW CATALOG

MAIL COUPON TODAY

TITUS, INC., Waterloo, Iowa

Gentlemen: Please rush me the following:

- ☐ Booklet on Trends in Warm Air Heating
- ☐ New Display Kit Information
- ☐ Complete New Catalog, with design and layout instructions, and engineering data

NAME _____

ADDRESS _____

CITY _____ STATE _____

What Do You Say?

You are invited to express your views — for publication here — on matters of interest to those concerned with residential air conditioning, warm air heating and sheet metal contracting. Address your comments to the Editor, American Artisan, 6 N. Michigan Ave., Chicago 2

Discusses Applications of Remote Air Cooled Condenser

IN REGARD TO the article, *How Condensers Work*, which appeared earlier this year in *American Artisan*, I do not believe that you have given the air cooled condenser proper treatment. In my opinion, all indications point to the ultimate use of the air cooled condenser in the major portion of residential applications.

The objections raised in the article do not, I believe, apply to the remote type air cooled unit condenser.

For example, it is stated that, "... an air cooled condenser may require frequent cleaning of its fins of dust and dirt to keep it operating efficiently." This objection is easily overcome in the remote condenser, which can be raised 12 or more inches from the floor.

The remote type of air cooled condenser can be placed where air is clean and plentiful.

In regard to costs, the article states, "An air cooled condenser requires the circulation of a large amount of air, which means power costs for the fan motor operation." The cost of a condenser should be broken down into three parts: initial cost, installation cost, and maintenance and service cost. In regard to the first, the cost of remote condensers in the residential range runs comparatively low. On the second count, installation of this type of unit is very simple, no water service being required. The remote condenser is comparatively light and easily placed in location. It can be mounted inside or outdoors. Regarding the third cost, except for lubricating the bearings and maintaining belt tension, the remote condenser is practically service-free.

The article mentions the need for ducting in air cooled condensers. However, since the remote condenser can be installed some distance from the compressor, there is seldom the necessity of using ducting. There are many locations in and around a home where the remote condenser can be installed — for example, in the attic, under a porch, in a garage, cellar, outdoors, etc.

—S. CHARLES SEGAL, Kramer Trenton Co.

The Author Replies:

IN ANSWER TO Mr. Segal, I will begin by pointing out that the article on condensers for air conditioning units was based upon the latest 2 and 3 ton packaged resi-

dential air conditioners, where the compressor is hermetically sealed in a housing containing its own motor. The air cooled condensers are mounted on the same base and are provided with their own motor and fan.

As to the dirt problem, the remote condenser may have advantages in that it can be placed high enough to keep it out of ground dust. I think, however, that most residential units will have a self-contained air cooled condenser rather than a remote type, and the self-contained condenser is factory sealed in the system. Dirt may be a problem in certain areas where the unit is installed in the basement with the air cooled condenser ducted to the outside slightly above the ground level.

In regard to cost, on a 2 or 3 hp residential air conditioner, the combination of coil, blower, drive, and motor costs more for the self-contained air cooled condenser than for the combination of shell and coil water-cooled condensers and water regulating valves. Water cooled condensers do not require lubrication or belt maintenance. However, they do require de-scaling in some areas.

My remarks on ducting applied to the air cooled self contained unit, and without ducts, the location of this type of unit is very limited. It is advantageous, of course, to locate it in such a way as to keep condenser air ductwork to a minimum.

SEES HIGHER STANDARDS OF HEATING COMFORT

WITHIN THE NEXT 10 years the standards of heating comfort now found in American homes will be relatively obsolete in all but the least expensive dwellings, in the opinion of Harold W. Sweatt, president, Minneapolis-Honeywell Regulator Co. He told the recent annual convention of the National Federation of Financial Analysts Societies that new heating concepts and such new developments as electronically controlled temperature systems that have thermostats mounted outdoors to detect weather changes will bring about this transition.

He pointed out that new trends in home design, such as ranch-type construction, are speeding the adoption of such concepts as zone control, which divides a house into separately controlled heating areas.

Your Ads Should Suit You

**Advertising should be truthful,
informative and attractive. But above
all, it should accurately
reflect the character of your business**

IN PRECEDING articles of this series, we have discussed various elements in a business which tend to amplify and make successful its advertising program. These have included the product or the service a business organization offers for sale to the public; the attitude of management; the general personnel of a business and its attitude toward management and the public; the physical properties of an office, a store or a plant; the letterheads and other printed forms; and other factors.

If all of these components have made a good impression on the public, your general advertising program will have been made more effective. The most effective advertising program in the world can be torn down, rendered less effective, or completely nullified by a poor product, or by the wrong attitude of management or employees, and by other innumerable factors that create bad public impressions.

Now we come to a consideration of your advertising program itself. We have established that every business takes on character through these very factors that we have considered. We will now assume that this is a good character. Then your advertising program must reflect in every way this reputation that your business has built up through other means and other factors.

Advertising Should Give Facts

Advertising must be honest. You want your business to be known for its integrity. Don't let your advertising destroy this reputation by misrepresenting your product or your service, or by resorting to half-truths. Make your advertising informative. Stay away from over-emphasis on the cute, the clever, the gimmicks in headlines and copy. Give people facts. You have a good product and a good service. Let the people know about it. You don't have to be vague in your advertising. You have nothing to hide, so speak out boldly, confident that the product and the service will sell themselves once you let the people know about them.

People want to be informed. They want to know what your product and service will do for them and what it costs. Too many ads nowadays, printed and spoken, leave too many questions in the minds of the readers

or the listeners and viewers. Don't leave any question unanswered in your advertising sales message. But on the other hand don't clutter up your copy with non-essentials. Say what you have to say in the fewest possible words.

"Dress Up" Ads for Interest

This doesn't mean that your message should be presented in cold, black type in the newspapers, or in a monotonous monotone on the radio. Use every trick known to the advertising field to present your message in as attractive and interesting a form as possible. Strive for perfection in the layout of your ads, in the use of art-work and color, and in your copy. Make every headline and every line of copy "sing." Dress it up to the best advantage typographically and give it a sparkling background on the radio and the television screen. But stick to the truth; stick to facts.

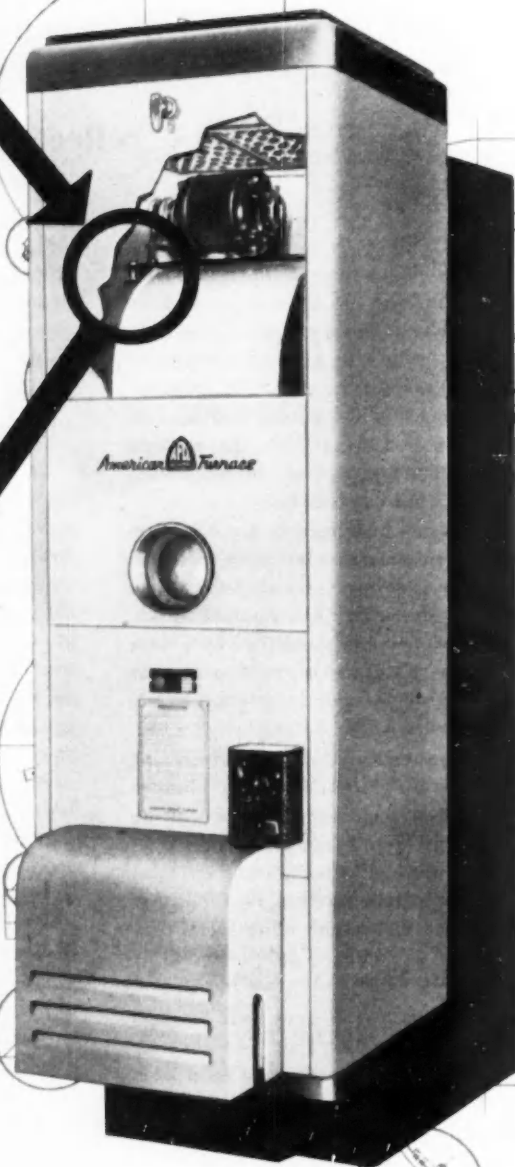
Advertising is an art. If you are not an expert in the laying out of an advertisement, in writing of copy for the printed piece or script for the radio, employ the services of one who is, whether he is in an advertising agency, is your own advertising manager, or is a representative of one of the media. Consult with any of these sources in the advertising field on the planning of your overall advertising programs. Tell them your objectives and let them help you with your planning.

Make your advertising program just as important a part of your overall business activity as the hiring of a key salesman or an important executive. Don't consider advertising a necessary evil. It isn't. It's a very definite and vital part of your whole business picture. Treat it as such. Give it the consideration it deserves. Spend an amount of money on advertising proportionate to the size of your business, and use every means at your disposal to see to it that the money is spent properly and most effectively.

Above all, make sure that your advertising honestly and truly reflects the character of your business and the kind of impression you are striving to make on the people who buy your product and service.

This is one of a series of speeches given by W. Frank Welch, president of The Ad-Ver-Ti-En, Inc., on "Making Outlets Acceptable."

**AMERICAN FURNACE IN BUILDING AND
RUBBERIZING, HAVE INSURED QUIETNESS
IN BLOWER ASSEMBLIES**



**MORRISON OFFERS BLOWER
PARTS SO YOU CAN BUILD
YOUR OWN RUBBERIZED
ASSEMBLIES. ENGINEERED
SPECIFICALLY FOR YOUR
OWN REQUIREMENTS . . .**

MORRISON PRODUCTS, INC. 16816 WATERLOO ROAD
CLEVELAND 10, OHIO

ROOF LEAKS —

(Continued from page 61)

wet. The distance between the plaster ceiling and roofing sheathing was 6 in.; 4 in. was taken up with insulation, leaving 2 in. of air space.

It was suggested that a hose be played on the roof to see where the water was coming through. This operation was started. But an interesting change began to take place. Slowly the ceiling began to dry up; this was due to exposing the insulation to the room air.

Our first contention — that the trouble was due to condensation — was proven right. However, we never collected for the additional expense to which we had been put and hours of aggravation to prove we were right.

Cross Ventilation Prevents Condensation

How did this condensation occur? In the large area of the roof which did not leak, the architect had shown 1 in. weep holes all around the building at the outside eave between each section of joisting, thus providing a complete circulation of air between the roof and the insulation. The architect also showed fly screening covering the holes. In the area that caused trouble, the 1 in. weep holes were at one eave, but at the opposite end they were closed off by a beam, thus allowing no cross ventilation.

The builder had installed holes on the outside eave, but carpenters, during construction, closed up the space just 3 in. away from the holes with headers, thus completely sealing up the insulated area.

During the course of working with this problem, we learned from the Bureau of Standards that the installation of fly screen over ventilating holes is not advisable because both paint and dust clog up the fine screen. The few bugs that might get into the openings are of only

FIXTURES FOR DRY CLEANERS —

(Continued from page 69)

75 in. lengths of angle iron are placed in each corner of the panel to add vertical support. Horizontal support is provided by the hanger panel (Fig. 3, left) and the lateral pipe bracket (Fig. 3, right).

The hanger panel is formed of a 28 in. wide, 8 ft long sheet of 18 or 20 gage sheet metal that is folded twice to strengthen the terminals of the upright flanges, which are 1½ in. high. The ends of the hanger panel are concealed within the front and rear panels, resting against the side flange to which they are bolted.

The lateral pipe is located 25 in. above the floor and has a 1¼ in. outside diameter. The bracket for holding this lateral support in place is made from 18 or 20 gage sheet metal and to the specifications shown in Fig. 3, right. A bracket 24 in. long runs across both the front and rear panel, adding strength to each. The hole for

minor annoyance. Secondly, it was learned that the vent holes should be computed to allow ¼ in. for each square ft of surface area in the space to be ventilated. Thus, the vent holes should have had an area of 4 in. for the 16 sq ft of ceiling between the beams.

To provide air for this trouble area without requiring extensive expenses, two long narrow ventilators were built and installed. No further difficulties have been encountered.

Preventing Other Types of Leaks

Many leaks attributed to roofers' errors can be traced to brick walls, particularly after a driving rain. The brickwork of a building should be checked for possible cracks every two years. Chiseling out the loose cement and installing new is one method of repair; applying clear liquid waterproofing is another that lasts for two to four years. A high grade caulking compound plastered over the cracks should do service for five years.

On "rush" construction jobs, contractors may be tempted to install their roofs before the roof decking is properly cured. A gypsum deck should be left at least five days to dry out before a built up roof is applied, and then, in many cases, it is still not dry.

If a builder insists that a roof go on while the decking is still wet, the roofer (if the roof is bonded) should call the material supplier or bonding company, and let them make the decision.

Other roof leaks for which the roofer is not responsible are caused by the settling of the building. Cracks develop in parapet walls and concrete decks. In some plants, decks are constructed 200 and 300 ft long without an expansion joint. When expansion and contraction do take place, the decks crack; the roof then either tears or leaks pitch through the openings. In all these cases, the roofer must be able to detect the cause of the leak so that the proper type of repair work may be done.

the lateral supporting pipe is in the middle of the bracket. The bracket is bolted to the panel on top and bottom. The pipe is also bolted top and bottom to the bracket before the bracket is placed against the panel.

Fixtures Prove Effective

The assembly of the two units shown in Fig. 1 takes up a space a little over 9 ft wide. The bags hung in the fixtures have identification tags taped to their exposed shoulders so that the right garment can be found easily. The 160 garment housing assembly has cleared the store of the space-robbing and inefficient older furniture which was crowded with clothes but accommodated only half the garments held in the new fixtures.

In the writer's opinion, the fixtures look better if their front panels are stainless steel or aluminum, which can be welded and finished. The panels can be welded on top and bottom. The lateral pipe brackets can also be welded, saving time in drilling and transferring bolt holes to the flanges. These details are decided by the fabricator.

SELLING THE FARM MARKET —

(Continued from page 70)

Both the ads and the circulars emphasize the benefits of safe, economical, automatic heat. The installed price, quoted in every ad, covers the oil burner complete with controls, one 275 gallon fuel tank, all the necessary tubing and fittings, and the labor time for the installation crew.

Restrict Range of Merchandising Plan

This advertising campaign, and the salesmen's canvassing which backs it up, is not, however, spread out over an indefinite area. During the last five years, the company has learned that its most effective merchandising area is within a radius of approximately 25 miles from Fort Wayne.

When the range was extended beyond this limit, the cost of obtaining each lead increased to a point that prevented economical handling. The factors entering into this situation were the influence of other marketing areas centering in communities closer to the prospect, distance, expense and time involved for the salesman to make the call, the fewer inquiries due to competitive advertising, and the extra expenses incurred by installation crews.

Students Trained for Canvassing

During the summer months the usual advertising is supplemented with farm-to-farm canvassing by college

students. Each of these temporary salesmen receives three days of personal instruction from Elmer Lassus, who on the first day takes them to an actual installation being made. Each step of the work is pointed out, and its relation to the completed job is explained. This teaches the students to "talk oil burners," says Mr. Lassus. The second day is spent in the office learning the handling of prospects, how to answer their questions, make suggestions, and know when the time is ripe for closing the sale. The morning of the third day is spent calling on recent customers who have learned the advantages of automatic heating; the afternoon of the third day is spent calling on a "cold" prospect, where Mr. Lassus uses the information given the apprentice salesman to develop the prospect's interest. If the prospect shows interest but doesn't buy on this first call, the follow-up is given to the new salesman who must work to close the deal.

These salesmen work on a straight commission basis but receive 8 cents a mile for car expenses.

One of the strongest selling points used by Mr. Lassus is the satisfied customer story. He quotes names, addresses, and telephone numbers, and any other data that can be verified by any of those customers whose names are mentioned. Sometimes he carries letters from customers as testimonials of the comfort and convenience that are possible with automatic heating. In this way, on the level of advertising, canvassing, and customer "approach," the company's sales effort is tailored to fit the farm market.

INDOOR INCINERATORS —

(Continued from page 71)

cannot accommodate. Before the advent of gas and oil heating plants, a considerable amount of this waste could be burned in the furnace. However, with the adoption of automatic heating, this is no longer possible.

In addition, the policies of most municipalities help to sell the idea of the indoor incinerator to the home owner. Fire departments are trying to stop urban outdoor fires and other hazards. Health departments are trying to eliminate garbage and refuse from exposed locations, to hold down the spread of disease. Many cities have smoke abatement programs, and are ruling out anything causing smoke — such as outdoor rubbish fires. Also, many cities do not have adequate garbage collection facilities because of the rapid growth of their population. In addition, some cities have run into difficulty because of the lack of adequate sewage lines to accommodate the waste from large numbers of sink disposal units.

Even if cities are able to handle rubbish collection in new, fast-expanding home areas, the garbage can and rubbish burner add nothing in the way of beauty to home surroundings. Communities are becoming more beauty and health conscious, and homeowners are there-

fore interested in incinerator units. Also, many of these new home areas are not yet incorporated, so that the home owner himself must work out the problem of garbage disposal.

Advantages for Housewife

Garbage disposal problems brought about by expanding municipal populations prevail in almost all sections of the country. The incinerator provides a means of doing away with all burnable refuse and also provides a safe, convenient method to abolish the unsightly rubbish burner.

An indoor incinerator eliminates tiresome trips to the garbage can, especially annoying in bad weather, and the housewife appreciates the fact that elimination of outside garbage and rubbish containers does away with a primary attraction to marauding dogs, insects, and rodents.

In addition, the incinerator plays a major role in doing away with overloaded wastebaskets, often an eyesore in an otherwise neat and clean home.

The gas fired indoor incinerator is one more step in providing automatic appliances which will aid the home owner in maintaining a comfortable, desirable home. As a source of revenue, it can cover much of the heating dealer's operating cost.

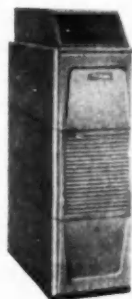
**Here's a sneak preview
of just one of the developments**

has ready to help you

**sell more
in
fifty-four**

New Mueller Climatrol Companion Units

**for all-season
air-conditioning**



For commercial
cooling, the
Type 904
Summer Conditioner
is available in 2,
3, 5, and 7 1/2-hp
sizes.



Yes! Mueller Climatrol will be *all new* in 1954—new styling by Brooks Stevens, world-famous industrial designer, new color, sparkling new finish, new equipment and new merchandising. The beautiful, compact companion winter and summer conditioners shown above give just an inkling of the wonderful things to come — early in 1954.

Months of research, engineering, testing, and production planning are behind the newly designed Mueller Climatrol line. And, when the curtains finally go up to show off all that is new, no one will question that Mueller Climatrol continues to be the outstanding profit line for high-caliber dealers.

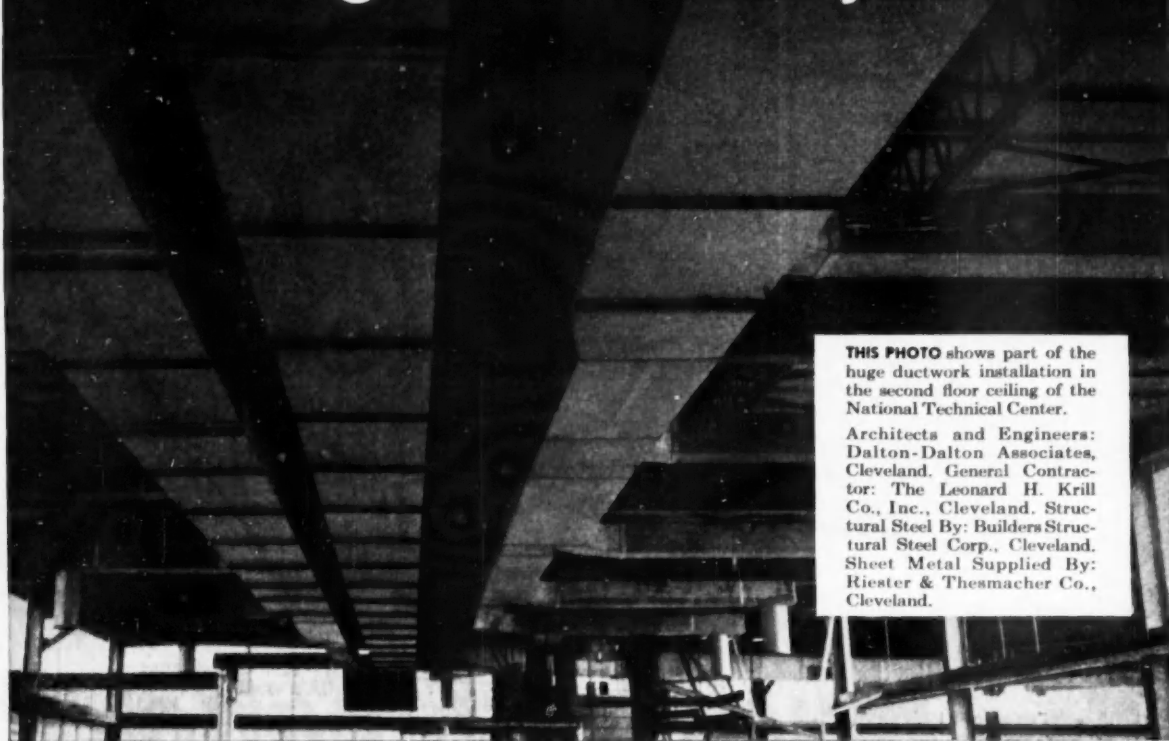
You'll soon get the whole story on all the reasons why Mueller Climatrol, the Big Name in Heating and Cooling, is your best bet for a bigger-than-ever year in sales and profits. See the Mueller Climatrol announcement in the January trade papers or write for advance information.

Mueller Climatrol

2030N W. Oklahoma Ave.
Milwaukee 15, Wisconsin

D-159

On large ductwork jobs...



THIS PHOTO shows part of the huge ductwork installation in the second floor ceiling of the National Technical Center.

Architects and Engineers: Dalton-Dalton Associates, Cleveland. General Contractor: The Leonard H. Krill Co., Inc., Cleveland. Structural Steel By: Builders Structural Steel Corp., Cleveland. Sheet Metal Supplied By: Riester & Thesmacher Co., Cleveland.

U·S·S Galvanized Steel Sheets... for faster, better workmanship

THIS large ductwork installation for the heating system of the new National Malleable and Steel Castings Company's Technical Center in Cleveland, Ohio, is typical of the many large jobs that are entrusted to U·S·S Galvanized Steel Sheets. For heating and metal-working men know that for good, time-saving workmanship—neat, long-wearing

finished jobs—and satisfied customers, there's no better sheet to use than U·S·S Galvanized.

U·S·S Galvanized Steel Sheets fabricate easily, even under difficult working conditions. They are uniform in softness, flatness and surface... can be rolled, bent, cut, stamped or soldered. The heavy, corrosion-resisting zinc coating won't crack or

flake during handling.

Your customers are familiar with U·S·S Steel Sheets—and the U·S·S Label. They know this label stands for dependable quality in steel of every kind. To assure continuing good jobs and customer approval, be sure to specify U·S·S Galvanized Steel Sheets by name when you place an order.

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S GALVANIZED STEEL SHEETS



UNITED STATES STEEL

HEATING CODE ADVANTAGES —

(Continued from page 75)

ship or corporation engaged in the design of warm air heating systems and/or sale, and/or installation of warm air heating equipment, that is or has a partner, firm member or regular employee who is skilled in the art of design and installation of warm air heating equipment and who has sufficient practical knowledge and experience to efficiently and properly assume the responsible charge and direction of others in the design of warm heating systems and installations of such equipment or heating systems, in said counties, and who qualifies as such under this act."

It is the duty of all partnerships and corporations qualified under this act to notify immediately the secretary of the board of examiners of the severance of connection of any person or persons upon whom such qualification rested with such partnership or corporation. If the qualified person leaves the employ of a firm, that firm must replace him with another qualified person before it can continue in the business of warm air heating installation.

Certificates of qualification must be renewed annually, requiring a fee of not more than \$25.

Examination Geared to Region

Examinations are given quarterly and are designed to disclose the practical knowledge of the applicant in regard to the safe installation of heating equipment and his technical knowledge, which is required for calculating heat loss, estimating duct sizes, figuring proper locations for registers, and arriving at other basic facts needed in the installation of coal, gas or oil fired furnaces.

In Georgia, climatic conditions vary widely. The southern counties are semi-tropical. Gas and oil furnaces are generally used in the Atlanta area. To the north, in the Rome area, coal is used as fuel as well as oil. Savannah uses no coal and little gas. In that territory oil is the most common fuel. In many rural districts, liquid petroleum gas is widely used. Tanks containing

liquid petroleum must be installed at safe distances from buildings. These must conform to the regulations of the warm air heating board and also of the Georgia State Safety Fire Commission.

Therefore, all contractors are not required to answer examination questions involving all types of fuel. They are, however, required to qualify in all matters pertaining to the type of heating equipment used in the sections where they operate.

Test Practical, Technical Skill

Examinations for those who wish to qualify are made up of questions selected from a master list of 100 questions designed to test the applicant's ability to design, lay out and supervise any of six distinct types of installation. The technical section of the examination involves figuring the heat loss of a five room bungalow, the amount of heat required, the size of furnace and ducts, and safe clearance from ceiling, in addition to reading blueprints. The second section of the test includes about 50 questions connected with practical knowledge of the types of heating installations made in that section of the state where the applicant will operate.

Typical of the questions asked in the quarterly examinations are the following:

How is the outside temperature selected for use in computing heat losses?

What is the purpose of a barometric draft control that is installed on the vent or smoke pipe of a fuel burning appliance?

What are the AGA approval requirements for floor furnaces burning liquefied petroleum gas or butane-air gas, a) when they are automatically controlled, and b) when automatic pilots are used?

What are the requirements of the recommended building code of the National Board of Fire Underwriters, 1949 edition, in regard to clearance of Type B gas vent pipe within 3 ft of the draft hood on a floor furnace in relation to combustible material?

Should gravity warm air leader pipes pitch up or down from the bonnet to the boot?

Which requires the largest gravity warm air leader pipe — a first story room or a second story room with equal Btu heat loss?

On a hand fired gravity warm air furnace, should a return air shoe connection enter the casing above or below the grate level?



THE LICENSED warm air heating contractor uses this stamp to validate layouts

Should a gravity return air duct be taken over the top of a furnace?

What is the minimum clearance required above a hand fired gravity furnace to combustible material?

What control equipment is essential in the usual warm air furnace stoker installation?

What is meant by "overfire draft" in regard to furnace and stokers?

Should pilot lines be taken from the top or bottom of a main horizontal gas line?

On what types of oil burners is gravity feed permitted?

What type of ignition is employed for gun type pressure oil burners?

What CO₂ content should be attained in oil burning when the excess air supplied is approximately 50 per cent?

In burning oil, what is the purpose of atomization?

What are the requirements of the recommended building code of the National Board of Fire Underwriters, 1949 edition, in regard to the installation of Type B gas vents for appliances burning solid or liquid fuel?

Investigations Are Non-Partisan

Officers and members of the Board of Warm Air Heating Contractors of Georgia, sworn in for the new four year term by Governor Herman Talmadge are John G. Mauldin, Atlanta, chairman; Laurence F. Kent, Atlanta, secretary; E. M. Copeland, Jr., Atlanta; W. H. Raymond, Jr., Columbus; and W. L. Mingledorff, Jr., Savannah.

"So far as its members are concerned, the board is non-partisan and non-political," explains Chairman Mauldin. "Quarterly examinations are announced by Dr. R. C. Coleman, joint secretary of the state examining boards, who signs all mail and keeps accounts of all funds connected with our activities."

The board is concerned with two

types of investigations. First, it retains an engineer to investigate complaints from home owners. Second, it makes sure that all contractors have licenses. The board is empowered to stop men who operate without licenses in the counties where the law is effective. Contractors realize that the law must be observed and they are usually able to prove their qualifications.

The engineers conducting the first type of investigation are not men with heating licenses and are not competitors. All investigations are based on the standards of any nationally recognized testing laboratory. No publicity is involved in investigating complaints, and over the past five years, the board has avoided court actions.

Action never is taken on complaints from competitors. Complaints must come in writing from home owners who feel their heating systems are faulty or inadequate or from manufacturers who believe their equipment is being improperly installed. Unless a complaint is received, the board cannot take action in a case involving faulty installation.

In one instance, which provides an example of code enforcement, a home owner complained that the heating contractor had made a faulty installation. This contractor refused to do anything when the faulty work was called to his attention by the manufacturer's representative who had been called in on the case.

The board ordered an inspection. The equipment was found to be up to standard but the installation was found faulty. The contractor was ordered suspended until he made the proper corrections. This he did without further delay.

Thus the law protects the manufacturer as well as the home owner against faulty installation of heating equipment.

Enforcement, not Persecution

The board has authority to suspend or revoke licenses. If a contractor has been found negligent, he is notified in writing by the joint secretary. He is given a reasonable length of time (30 days) to correct his work, after which time another inspection is made. If he has taken no steps to correct the work, his license is suspended. When the work is corrected, his license is restored. "We want enforcement, not persecution; our prime aim is to protect the home owner," Chairman Mauldin states.

To aid in implementing the law, a provision has been made that "any person, firm or corporation violating any provision of this act shall be deemed guilty of a misdemeanor and upon conviction shall be fined not less than \$25 nor more than \$100 or imprisoned in the county jail for a period of not more than 90 days, or both, and if the violation of this act consists of engaging in said business without a certificate of qualification, each day the offender shall

continue in business without said certificate shall constitute a new offense."

The board has not been required to take such drastic action. Contractors who have been found to have made faulty installations have made the necessary changes or repairs even when considerable expense was involved and when entire installations had to be torn out of completed buildings and replaced with work that met standards.

Seldom are such hardships encountered, for the aim of the law has been to raise the level of intelligence and make better business men of all who are engaged in the warm heating business.

Chairman Mauldin suggests that any state desiring to adopt such a law should make it statewide in scope. Counties in Georgia not presently covered by this law have asked legislation to bring them under its jurisdiction because instances have arisen when an operator, disqualified from practice because of failure to meet the requirements, has moved into a community not governed by the law and performed work that does not meet standards recognized nationally.

Laurence F. Kent, who has been secretary of the board since its inception, states that the group enjoys complete backing from the contractors as well as home owners. The service costs the home owner nothing. The contractors are proud to display the registered contractor insignia, he says.

RESIDENTIAL COOLING ON ASHVE PROGRAM

THE 60TH ANNUAL meeting of the American Society of Heating and Ventilating Engineers will be held in Houston, January 25 to 27. Plans for the meeting (at which a total of 13 technical papers will be presented at four sessions) are now complete, according to D. M. Mills, general chairman of the committee on arrangements.

Topics to be covered in the sessions include, among others:

Cooling a Small Residence Using a Perimeter-Loop Duct System, by D. R. Bahnfleth, C. F. Chen and H. T. Gilkey.

Room Air Distribution Research for Year 'Round Air Conditioning—Part II, Supply Outlets at Three Floor Locations, by H. E. Straub and S. F. Gilman.

These subjects will be discussed on Wednesday, January 27, at 2:00 p.m. Also

scheduled for Wednesday, at 9:30 a.m., are:

Utilization of Solar Energy for House Heating Design.

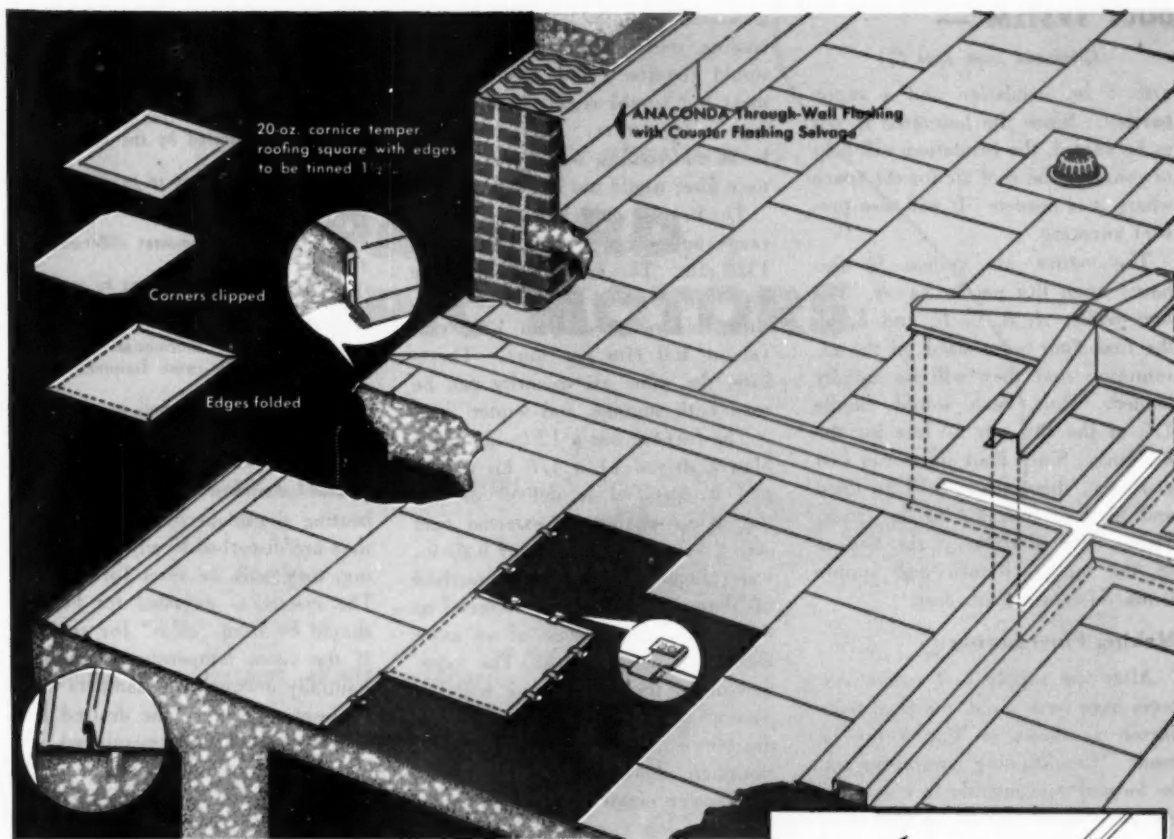
Economics of Solar Energy Heat Pump Systems.

On Monday, January 25, at 9:30 a.m., W. W. Smith will give a talk on *Prediction of Cooling Tower Performance*.

The first session will be held at the Rice Hotel, meeting headquarters, on Mon-

day morning, with ASHVE president Reg F. Taylor presiding and L. T. Mart as chairman.

Registration of members and guests will begin on Sunday, January 24, at the Rice Hotel and will continue through Wednesday. The entertainment program includes tours of the historical sites and industrial centers of Houston.



HOW TO PROVIDE FOR EXPANSION

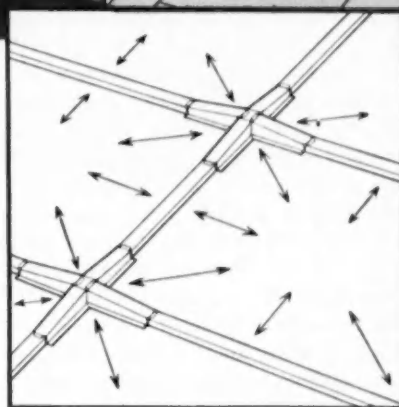
in watertight, flat seam copper roofing

Flat roofing presents a special expansion-contraction problem because seams must be soldered to be watertight—and yet the metal should be allowed to expand or contract freely with changes in temperature.

This drawing illustrates how this problem can be met by dividing the roof into rectangular areas approximately 40-ft. square, separated by expansion battens

with expandible intersections. This permits contraction or expansion of the copper to or from the center of each rectangle without causing excessive stress.

Note the construction of the expandible cover which caps the intersection and is soldered to the expansion battens. Note, also, the methods of finishing the roof edge for various types of building design.



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DUCT SYSTEM —

(Continued from page 57)

with 1 in. insulation and a vapor barrier. Since the basement is not to be cooled, the insulation will help to conserve the cool air for the space where it is needed. It will also prevent sweating.

The return air system is also based upon Btu per hr values. The five grilles, A, B, C, D, and E, on the first floor were sized on the assumption that they will be equally loaded. Thus, each would handle 1/5 of the Btu per hr loss for the building. Since floor joists run east and west, these spaces will be lined and used to feed air to the trunk. Sizing data is given at the bottom of the table. Return and supply trunk ducts are 8 in. deep.

Making Final Layout

After the supply and return systems have been sized, the final scale layout as shown on Fig. 1 can be made. Conditioning equipment can be located conveniently to keep duct connections simple. It will be noted that we have chosen to locate the cooling unit upstream with respect to the heating unit. At the present time the relative position of these two units is the subject of considerable discussion in the industry. Some furnace manufacturers object to having the cooling unit upstream, saying that this arrangement accelerates rusting of the heat exchanger. They argue that during the cooling season moisture from the warm air in the chimney will condense on the inside of the heat exchanger. Other manufacturers are of the opinion that the arrangement shown will make very little difference in the furnace life. In this example, it would not matter which arrangement was used. The dealer should check with the manufacturer of his heating and cooling equipment and be guided by whatever recommendations are made.

Some of the new units having heating and cooling combined in one package contain a built-in bypass so that cool air need not pass over the furnace portion in the summer. With the arrangement shown,

it would be possible to bypass the cooling unit in the winter. This would require a fan speed adjustment but would result in some savings in fan power. The filter would be in the cooling unit; thus, a furnace filter would not be used.

The heating unit chosen has an air range adjustable between 1050 and 1320 cfm. This is a good match for the 3 hp cooling unit to be used, since this requires about 1200 cfm (about 400 cfm per ton). Therefore, the same air quantity can be used both summer and winter.

The furnace has a 12 in. diameter blower driven by a 1/6 hp motor, and is specified to deliver the required air against an external duct static resistance pressure of 0.20 in. water gage. The duct sizing method of Manuals 7 and 11 is designed to result in a duct system of no more than 0.20 in. resistance. The introduction of the cooling unit will impose an additional static pressure on the blower. It is a fairly safe presumption, therefore, that the standard blower motor will no longer be adequate and that at least a 1/4 hp motor should be used. Furnace manufacturers can supply exact information in this regard so that there will be no guesswork.

Controlling the System

The system will be controlled by separate heating and cooling thermostats mounted in the hall as indicated on Fig. 2. There will also be a manual changeover to switch from heating to cooling. Low voltage controls are preferred as they are simpler to install and are in general more sensitive than heavy duty, line voltage thermostats. The heating thermostat will control the gas burner in the conventional manner. A bonnet thermostat will operate the blower in the winter. When the changeover switch is thrown to cooling (there should be an intermediate "off" position) the wiring should be arranged to operate the blower continuously. The cooling thermostat will cause the compressor to cycle on and off as required.

When the system is put into operation it will be set for substantially continuous winter air circulation in

accordance with the procedure described in Manual 6 (NWAHACA) which suggests the following steps:

1. Adjust burner so that gas is supplied at the rate indicated by the heat loss of the house.
2. Adjust air volume to produce a temperature rise through the furnace of 100 F.
3. Adjust fan thermostat differential to about 15 F.
4. Adjust fan cutout point to as low a temperature as will prevent drafts (perhaps 90 F).
5. Adjust room thermostat differential to a minimum to cause frequent burner cycling.
6. Set balancing dampers to achieve an air supply to each room which will create an even temperature throughout the house.

The balancing damper settings for heating should be marked so that if they are disturbed to adjust for cooling, they may be reset for heating. The system as adjusted for heating should be tried "as is" for cooling. If the room temperatures are substantially unequal, the dampers must be reset to achieve the desired balance. It should be remembered that in this example all basement registers are to be closed during the cooling season except when the basement is to be cooled at the expense of the house proper. Registers in other parts of the house may be adjusted both as to air volume and deflection to suit individual requirements.

The purpose of this sample problem was to touch on the highlights of the procedure for designing a year 'round air conditioning system. There are many details, refinements and short cuts which each dealer develops through his own experience in solving practical problems. Many of these are successful enough to become recognized as standard practice by the industry. The dealer should be guided by industry recommendations but should not allow them to stop him from developing sound ideas of his own.

Watch for the Directory Section in the January, 1953 Artisan. Many product classifications have been added or revised.

extra value for your products...

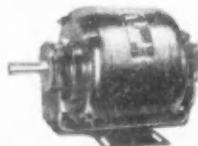
PACKARD ELECTRIC MOTORS

for:

BENCH TOOLS • BLOWERS • COMPRESSORS • DRYERS



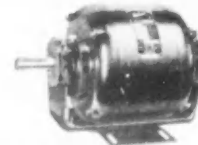
DISPOSAL UNITS • WASHERS • IRONERS



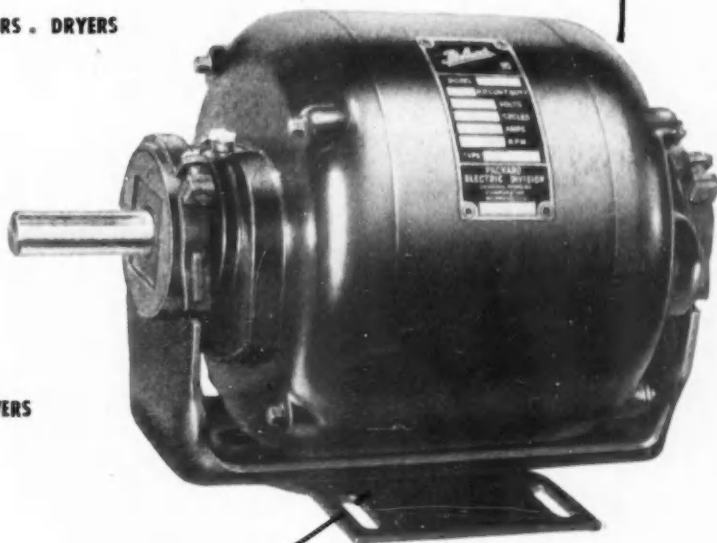
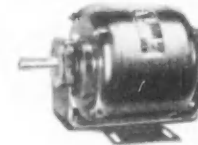
OIL BURNERS • STOKERS • LAWN MOWERS



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CREAM SEPARATORS • VENTILATING UNITS



When your product is powered with a Packard Electric motor, its performance and reliability make it a salesman that never stops selling for you.

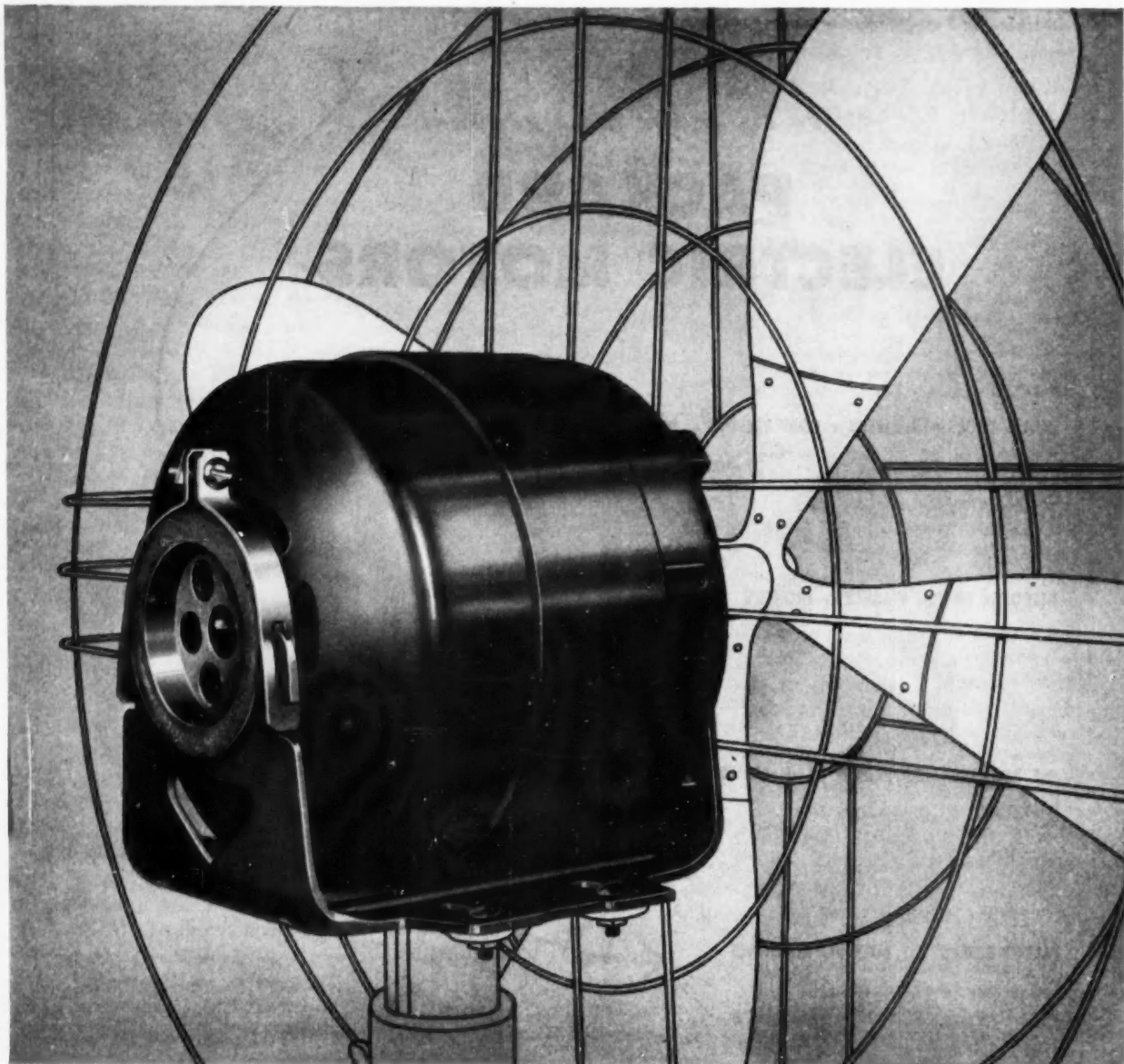
Packard Electric's tremendous facilities for volume production make it possible for you to put these "silent salesmen" to work for your motor-powered products at a surprisingly low cost. Why not get all the facts now, from Packard engineers?

DEPENDABLE APPLIANCE MOTORS FOR THIRTY-SIX YEARS

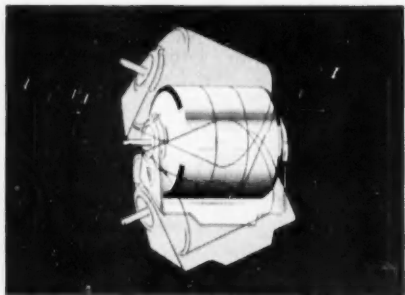


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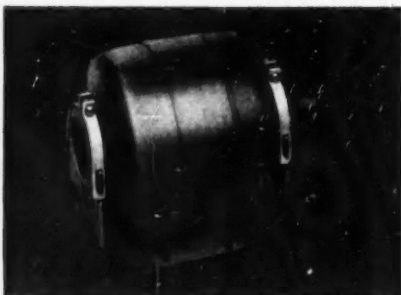
Packard Electric Division
General Motors Corporation
Warren, Ohio



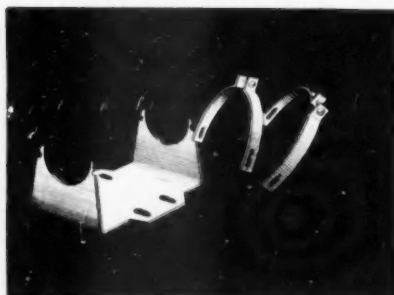
Here are *SIX* good reasons why your product



1 VERSATILE all-angle unit bearing design and sealed-in lubrication system permit motor to be mounted in any position.



2 ATTRACTIVE APPEARANCE of motor improves the appearance of your product in applications where the motor will be visible.



3 MOUNTING CONVENIENCE helps solve product design problems. Use resilient cradle-base or end-ring mounting.

This motor drives a ventilating fan . . .

G-E shaded pole motors can help sell your products too

Ventilating fan manufacturers know that a quality product needs a quality motor. That's why so many specify G-E shaded pole motors and profit from their choice.

Your products, too, whether cooling fans, unit heaters, condensing coolers, exhaust fans, evaporative coolers, or others, can be made better to sell faster with versatile G-E shaded pole motors.

The things you need in a motor—all angle operation, with shaft up, down, horizontal, or in between, lubrication for life, light weight and quiet operation—are all features of the G-E shaded pole motor. And the application of a simple control permits the use of this motor for adjustable speed operation.

In addition, permanent lubrication system virtually eliminates costly maintenance problems. Its practical, smooth finish and trim, symmetrical design make the G-E shaded pole motor a unit that will give your product a hard-working, functional appearance.

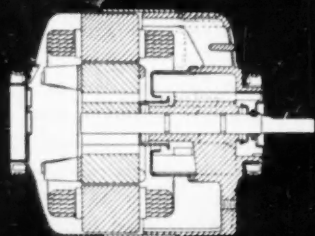
For full information on available ratings, contact your nearby G-E Apparatus Sales Office today. General Electric Company, Schenectady 5, N. Y.

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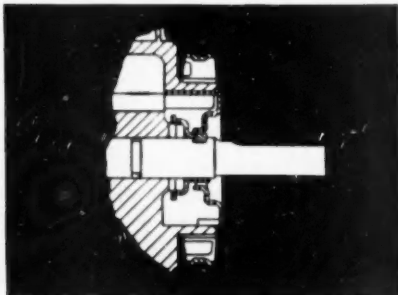
You can put your confidence in—

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should use a G-E Shaded Pole Motor



4 QUIET OPERATION is a feature everyone wants. This is gained by accurate alignment and positive lubrication.



5 LUBRICATED FOR LIFE avoids inconvenience of adding lubricant . . . reduces maintenance to a minimum for dependable operation.



6 "EQUIPPED WITH G-E MOTOR" helps sell your product by backing it up with G.E.'s reputation for quality motors.

WHAT THE ASSOCIATIONS ARE DOING



THE 36th ANNUAL CONVENTION committee for the Indiana association includes (*front row, l. to r.*) Wm. E. Garber, Jr.; H. W. Meggs; Al Nemec; Don McCloskey, chairman; Merle Daily, president; Frank Anderson, secretary; V. H. Hazelton; Harry Dorsett; Harold Boyd, co-chairman; (*back row, l. to r.*) George Vyverberg; Bob Hurt; Dick Watson; Charles Buck; Leonard Hull; Bob Hoyt; Ray Boyd; Sherman McCoy; Frank Stewart; Bill Shirley; Howard Tout; and Jack Ellis

Plan February Convention for Indiana Group

DON MCCLOSKEY, who was chairman of the 35th annual convention, has been re-appointed chairman of the 36th annual convention by the Sheet Metal and Warm Air Heating Contractors' Association of Indiana. The convention is scheduled for February 4 and 5, at the Hotel Severin, Indianapolis. Speakers will include Prof. Bill Miller, Purdue University; Dean Lorin G. Miller, technical consultant, National Warm Air Heating and Air Conditioning Association; and Clyde M. Barnes, editor, *American Artisan*. Various members of the research staff at Purdue University will outline "new opportunities in heating and air conditioning"; there will be a discussion of draft problems in connection with coal, oil and gas equipment; and liabilities and the insurance coverage recommended for heating and sheet metal contractors also will be covered. A presentation will be made by H. W. Meggs on "indoor comfort by warm air heating."

Thomas A. Ewing celebrated his 80th birthday anniversary recently with his family and friends. Mr. Ewing was presented with a life membership in the association several years ago, and is president of the Quarter Century Club, of which he is the oldest member.

The association's third quarterly district meeting of contractors and supply men and their wives was held recently at the Hotel Anderson, Anderson, Ind. Prof. W. E. Fontaine, Purdue University, described the increased productivity of stock, sheep, swine and poultry raised in properly constructed and air conditioned buildings.

He cited, for example, that swine raised under proper light and air conditions show a gain of 100 lb on 400 lb of feed, while those raised under ordinary conditions require about 1200 lb of feed for a similar gain.

H. W. Meggs, director of the association's department of public information, called attention to a large oil clinker cone which he had put on display to demonstrate the waste and danger of improper oil burner installations performed by inexperienced installers.

The association's planning committee of the Purdue four day warm air heating short course met on October 14 at the university to schedule a program for the fifth annual short course. It will be held March 3 to 6.

To Curb "Bid Shopping" in Ga., Fla.

THE roofing and sheet metal contractors associations of Georgia and Florida have joined in mailing a brochure to all architects in those states requesting that they consider a suggestion that all future specifications require a listing of subcontractors by the general contractors bidding on a job. This move followed a study made by the two associations which covered the effects of "bid shopping" as well as the steps already taken by some states and the federal government (in proposed Bills S. 818 and H.R. 1825) designed to remedy the condition. The brochure lists the disadvantages of "bid shopping," and cites the probable benefits which would result from its elimination, pointing out that with this protection,

subcontractors would bid more promptly and at the "real" figure at which they expect to do business.

Michigan Group Stresses Cost Records

IN A RECENT bulletin, the Michigan Heating and Sheet Metal Association points out that "proper job cost records are the most important phase of contractor accounting." The point is made that no proper selling price can be set until the cost of a job has been established as closely as possible. The proper way to estimate a job, according to the bulletin, is first to determine the amount and cost of each item of material, which includes any equipment going into the job. The next step is the labor cost estimate. Owners' "salaries" and overhead are next considered. The bulletin offers hints on accurate estimating of each of these items.

Another bulletin mentions that the classified telephone directories in several Michigan cities now show numerous listings applicable to the heating contractor, and points out that these multiple listings could be avoided through the use of a cross reference system. The bulletin suggests that local associations take the matter under consideration and appoint committees to discuss the problem with representatives of the telephone company and with similar committees from other areas. Such committees have already been appointed by the Grand Rapids, Kalamazoo and Detroit associations.

Los Angeles Gas Institute Handles Labor

THE INSTITUTE of Gas Heating Industries, Los Angeles, has assumed the responsibility of all future labor relations and contract negotiations on behalf of its membership. This measure, decided upon at a recent board meeting, had been recommended by the contractors' section of the institute. Carl Gould of the law firm Hill, Farrer & Burrill, has been retained by the institute to advise on all labor matters.

Fuel Oil Talk in Grand Rapids

"WHY SHOULD someone call at midnight and get you out of bed to service an oil burner if the refiner and the manufacturer of the oil burner have 'done their stuff'?" At the November 10 meeting of the Grand Rapids Heating Association, Dr. H. R. Heiple, Shell Oil Co., attempted to answer this question and to outline the results of fuel oil and oil burner research carried on by his company in collaboration with burner manufacturers. Dr. Heiple, head of the company's oil burner testing laboratories during recent years, covered characteristics that are of primary importance in fuel oils to assure that they will burn completely, with a minimum of service trouble; factors necessary from the service and sales companies' point of view to make present day fuel oils burn satisfactorily; and research which has developed to assure oil burner owners maximum, economical satisfaction in oil heating. The research he described has been motivated by the fact that much confusion has existed regarding fuel oil specifications, their significance in assuring good

Coming Events

- Jan. 17-20 — New York State Sheet Metal, Roofing & Air Conditioning Contractors Association, Annual Convention. Seneca Hotel, Rochester. Clarence J. Meyer, Secretary, 567-69 Genesee St., Buffalo.
- Jan. 18-19 — Chicago Indoor Comfort Conference, Graemere Hotel, Chicago. George Kalvog, Chairman, 855 N. Cicero Ave., Chicago.
- Jan. 25-27 — American Society of Heating and Ventilating Engineers, 60th Annual Meeting. Rice Hotel, Houston. A. V. Hutchinson, Secretary, 62 Worth St., New York 13.
- Feb. 4-5 — Sheet Metal and Warm Air Heating Contractors' Association of Indiana, Annual Convention. Hotel Severin, Indianapolis. Frank E. Anderson, Executive Secretary, 439 S. 17th St., Terre Haute, Ind.
- Feb. 11-13 — Sheet Metal and Roofing Contractors Association of Minnesota, Annual Convention. Radisson Hotel, Minneapolis. Arlowe W. Esau, Secretary, Mapleton, Minn.
- Feb. 22-24 — Ohio Sheet Metal Contractors Association, Annual Convention. Deshler-Wallick Hotel, Columbus. William C. Lumm, Secretary, 2512 Albion St., Toledo 6.
- Feb. 24-25 — Michigan Heating and Sheet Metal Association, Annual Convention. Pantlind Hotel, Grand Rapids. N. J. Biddle, Secretary, 3035 E. Grand Blvd., Detroit 2.
- March 8-10 — Sheet Metal Contractors Assn. of Wisconsin, Inc., Annual Convention. Schroeder Hotel, Milwaukee. Irv. Kanitz, Secy., 225 E. Michigan St., Milwaukee.
- April 20-22 — Sheet Metal Contractors Association of Illinois, Inc., Annual Convention. Abraham Lincoln Hotel, Springfield. E. A. Schmidt, Secretary, 1210 E. Laurel St., Springfield.
- May 10-12 — Sheet Metal Contractors National Association, 11th Annual Convention. William Penn Hotel, Pittsburgh. J. D. Wilder, Executive Secretary, 170 Division St., Elgin, Ill.
- May 16-20 — Oil Heat Exposition sponsored by Oil-Heat Institute, Commercial Museum, Philadelphia. R. H. L. Becker, Managing Director, 500 5th Ave., New York 36.

combustion, etc., and this has created a need for closer understanding between oil burner manufacturers' service people and the oil companies.

The date of the association's annual Christmas party has been changed from Friday, December 18, to Wednesday,

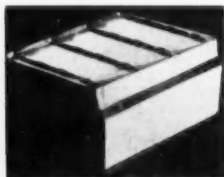
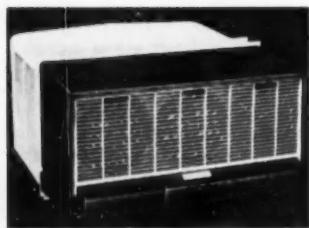
(Please turn to page 110)

EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For new literature giving product information which is available see page 126.

Redesigned Room Air Conditioners

COMPLETELY REDESIGNED line of room air conditioners, including models in four sizes: 1, $\frac{3}{4}$, $\frac{1}{2}$ and $\frac{1}{3}$ hp — General Electric Co., Major Appliance Div., 310 W. Liberty St., Louisville 2. Design changes are intended to provide increased cooling and dehumidification and a lower velocity air flow for quieter operation. The $\frac{3}{4}$ hp size also will be available with reverse cycle operation for heating in cool weather. New operating features of the three larger models include an exhaust for the removal of smoky or odor-laden air, and a single control for five "comfort positions," including a setting for extra dehumidification. Air flow is directed in a variety of patterns, since three circular louvers on each unit can be rotated independently. Air intakes on all models are on the underside of the cabinet. The 1 hp unit, Model R-72, (208 or 230 volt operation) is designed for room areas of up to 700 sq ft under average conditions. The $\frac{3}{4}$ hp unit, Model R-52 (115, 208, or 230 volt operation) is for room areas up to 500 sq ft. The $\frac{1}{2}$ hp unit, Model R-32 (115 volt operation) is for areas up to 300 sq ft. The $\frac{1}{3}$ hp unit, Model R-22 (115 volt operation) is for areas of up to 200 sq ft.



Above: Flashing
Left: Conditioner

Two Piece Cap Flashing

"KEYSTONE" TWO PIECE cap flashing, consisting of two factory formed copper members — Revere Copper and Brass, Inc., 230 Park Ave., New York 17. One of the members is the receiver which is to be built into a masonry wall. The other is the counterflashing insert which snap-locks into place after the roofing and base flashing have been completed. The receiver itself comes in two forms — one a through wall flashing and the other a flat copper receiver for use where only enough copper is needed to secure the receiver in the wall. The cap flashing is available in 10 or 16 oz. solid copper sheet or lead-coated copper. The insert is furnished in 51 in. lengths for recommended overlap of 3 in.

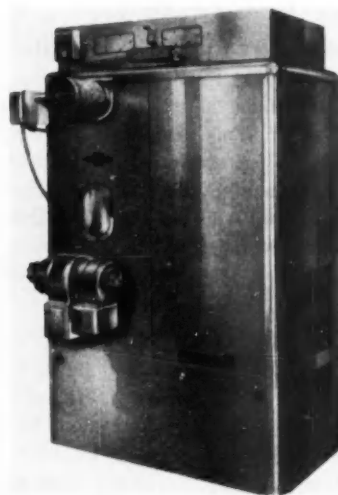
Residential Electrostatic Air Cleaner

"PRECIPITRON" RESIDENTIAL electrostatic precipitator designed to catch airborne dust and dirt electronically —

Westinghouse Electric Corp., Sturtevant Div., 105 Readville St., Hyde Park, Boston 36. Airborne particles are given an electrical charge by passing through a strong electric field. This causes them to cling to the collector plates. The accumulated dirt can be periodically flushed at a spigot. The unit can be suspended from the ceiling. It utilizes return air ducts already installed, or a simple distribution system can be set up, the company states. The unit operates on regular house current. The lightweight, suspended model, with 1000 to 1200 cfm capacity, is designed for a five or six room home. For homes having up to 12 rooms, there is a larger unit, with 2000 to 2400 cfm capacity.

Year 'Round Air Conditioner

"CONDITIONAIR" year 'round air conditioning unit designed for gas or oil heating — Delco Appliance Div., General Motors Corp., 391 Lyell Ave., Rochester, N.Y. Adjustment of the thermostat and damper control pro-



vides the temperature desired for any season. Heating capacity is 75,000 Btu per hr output at plenum for the oil fired unit, 72,000 for the gas fired unit. Cooling capacity for both is 37,100 Btu per hr (nominal, ASRE).

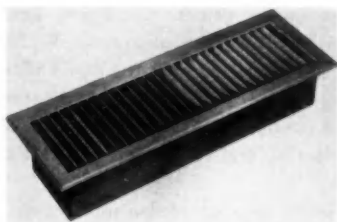
Plastic Metal Laminate

LAMINATED MATERIAL of vinyl plastic and sheet steel or aluminum — Naugatuck Chemical Div., United States Rubber Co., 1230 Avenue of the Americas, New York 20. The material combines the structural strength of metal with the bright colors and corrosion resistance of vinyl plastic, the company states. To date, cold rolled steel, hot rolled pickled steel and aluminum, from 18 to 34

gage, have been used to make the laminate. Applications include building siding, interior paneling, machine housings, truck and trailer body panels, counter tops, shelving, lockers, etc. More than 20 manufacturers are now experimenting with the process.

Floor Registers

TWO NEW MODELS of floor registers — A & A Register Co., 8327 Clinton Rd., Cleveland 9. The No. P-28 (illustrated) is designed for concrete slab floor basement-less homes. Baffles are slanted so that the flow of air



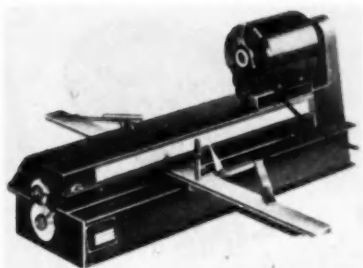
is diffused in a fan shaped pattern of 100 deg. The No. F-20, an adaptation of a standard type floor register, is produced by a fret-locking production method which results in sounder construction, according to the company. It is available in three types of finishes.

Canvas Connection for Ducts

"SILENT DUCT" 100 ft coils of canvas or asbestos fastened to metal, for use as flexible connections in duct systems — Elgen Mfg. Corp., 41-34 39th St., Long Island City 4, N.Y. The canvas is resistant to flame, water, mildew and rot and is fastened along the outer edges to two strips of 24 gage galvanized metal. The assembly is layed flat on the bench and is then ready for markoff, cutting, braking and seaming.

Bench Model Portable Slitting Shear

MODEL JB-20 bench model portable metal slitting shear designed to slit up to 20 gage mild steel at 62.5 fpm, at tolerances of 0.005 in. or less, with minimum distortion



— Wilder Mfg. Co., Inc., Route 2, Box 880, Carmel, Calif. It weighs 72 lb. and plugs into 110 volt outlets. Features include all steel cut reduction gears and oil impregnated porous bronze main bearings.

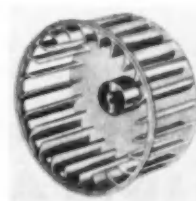
Packaged Chimney

"THULMAN" CHIMNEY now available in 7 in. diameter designed to provide 35 per cent more capacity — The Majestic Co., Inc., 733 Erie St., Huntington, Ind. The

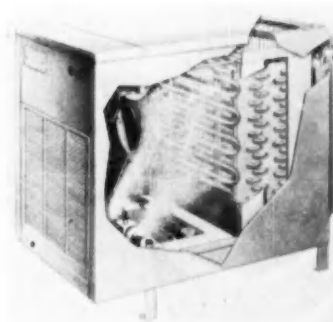
unit replaces the 6 in. flue, is designed to permit use of such units as a 150,000 Btu gas furnace, a gas hot water heater and a gas home incinerator on the one chimney. In construction, a vitreous enamel coated steel flue is jacketed by two aluminum ducts spaced apart by special spacing devices. The flue passes through an aluminum base section while aluminum jackets terminate within the base (which serves to connect the jackets into a continuous air passage). Both inner and outer ducts are open at the top to outside air. Combustion products entering the flue raise the temperature of the air in the inner duct. This air rises and, displaced by air from the outer duct, escapes into the atmosphere. The chimney is UL approved for zero clearance to combustible material. The flue coating withstands temperatures up to about 1650 F, but the cooling effect of air in the surrounding ducts keeps the flue surface temperatures below 1000 F, the company states.

Blower Wheels

"PLASTURBO" plastic centrifugal type blower wheels with curved vanes, injection molded in one piece, with an integral hub — The Master Appliance Mfg. Co., 4th and Ontario St., Racine, Wis. Available in several sizes, they are designed for efficient, quiet operation in air conditioning and heating equipment.



Above: Blower Wheel



Right: Evaporative Condenser

Evaporative Condenser

"AQUA-FOG" evaporative condenser, in 2, 3, and 5 ton sizes, designed for efficient heat transfer while maintaining economical head pressure under maximum operating conditions — The Coleman Co., Inc., Francis and 2nd St., Wichita 1. Heat transfer is accomplished by enveloping the condenser coil in a heavy mist which is created by a turbulator unit consisting of a sealed motor and two direct-mounted wheels revolving in the water sump. A fan, mounted above and behind the turbulator, forces air over the wet coil to complete the heat transfer. The heavy wash spray prevents formation of scale on the coil, and less than 3 gph of make-up water is required per ton of refrigeration, the manufacturer states.

Automatic Oil Fired Furnace

"ZEPH-AIR" Model OZ-SL 100 automatic oil fired furnace with cast iron heating chambers and heat exchange-

(Please turn to page 114)

WHAT ASSOCIATIONS ARE DOING —

(Continued from page 107)

day, December 16. It will be held at Finger's Restaurant. Leon Heth is general chairman of the committee in charge of preparations.

Revamp Canadian Comfort Schools

THE NEXT SERIES of Indoor Comfort Schools sponsored by the Canadian chapter of the National Warm Air Heating and Air Conditioning Association will be divided into basic and advanced classes in order to provide more adequate coverage of design information. As a result of the division, it has been possible to reduce the number of school days for each class to four. The advanced schools will deal with the NWAHACA manuals and warm air heating design procedure. The introductory schools will provide thorough coverage of the basic warm air heating design work.

Basic courses will be given in Kitchener, January 11 to 14; Toronto, January 18 to 21; Calgary, February 8 to 11; Winnipeg, February 22 to 25; Hamilton, March 15 to 18; Montreal, March 22 to 25; and Quebec City, April 26 to 29.

Advanced courses will be held in Vancouver, February 1 to 4; Saskatoon, February 15 to 18; London, March 8 to 11; Toronto, April 5 to 8; and Amherst, April 19 to 22.

Approximately 1000 people attended the eight lectures recently delivered by C. W. Nessell, chairman of the NWAHACA field investigation committee, who toured Windsor, London, Hamilton, Toronto, Kingston, Ottawa and Montreal. He outlined the work of his committee which has led to "new clothes in the wardrobe of warm air heating."

Sheet Metal Distributors Elect Officers

AT ITS 13rd annual meeting, held in Atlantic City recently, the National Association of Sheet Metal Distributors elected the following officers: President, Lee J. Haines, E. E. Souther Iron Co.; vice presidents, W. H. Bowe, Jr., Herick Co., and Roger K. Becker, Ohio Valley Hardware & Roofing Co. Members of the executive committee elected for terms expiring in 1956 are: W. J. Busser, Jr., Busser Supply Co., and A. B. Lewis, The Palmer-Dona-vin Mfg. Co.

The association also adopted a number of resolutions, among them one on quality marking of galvanized sheets. The resolution cites the lack of such marking as a "serious deterrent to the successful marketing of the product," and points out that a minimum standard quality marking would be "helpful to architects, builders and others to determine that sheets of a known quality are being used." The association went on record as urging the marking of galvanized flat sheets with the minimum coating and recommended that the mills give favorable consideration to

NEW

SUSPENDED FURNACES

2 SIZES — 80,000 and 112,000 BTU
OIL BURNING ONLY



VOLUME BUYERS!
GET OUR
**SENSATIONAL NEW
PRICE SCHEDULES**

J.V. PATTEN COMPANY
SYCAMORE, ILLINOIS, U. S. A.

**NEW
ADDITION
TO THE
COMPLETE**

LINE
10 BASEMENT UNITS
10 HIBOY UNITS
3 GRAVITY UNITS
OIL OR GAS

**Write
TODAY**

*This
little flame
went to
market*



**General Controls takes
advantage of the
power* in the pilot flame
of your
gas-fired appliance**

*700 millivolts plus



Fifteen years ago our *first* little flame went to market as the original General Controls self-generating control system. Since then hundreds of thousands of others have followed, successfully establishing our B-60 all-gas control system as the leader of self-powered controls for gas appliances. The B-60 system is completely self-generating using current produced by the Pilot Generator to operate a quiet automatic gas valve at the demand of a room thermostat, limit switch, or timer. You can endorse General Controls' B-60 all-gas control system to your customers . . . it's first and foremost on the market.

GENERAL CONTROLS

Glendale, California • Skokie, Illinois

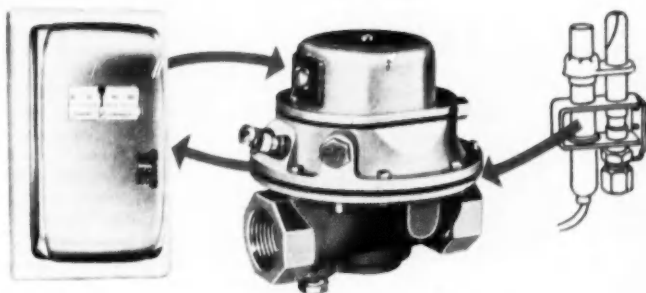
Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls for Heating, Home Appliances, Refrigeration, Industrial and Aircraft Applications.

FACTORY BRANCHES IN 35 PRINCIPAL CITIES

See your classified telephone directory.



General Controls Thermostats are sensitive to radiant and convected heat. Available in floating, snap-action or mercury switch contact models. For timer model, specify T-70T.



B-60 Gas Valve—Available in $\frac{3}{8}$ " to $1\frac{1}{2}$ " ips, suitable for all gases and with universal gas utility acceptance.

what associations are doing . . .

eliminating as soon as possible "the wide and divergent quality standards which now exist."

Also featured at the meeting was a speech by Ray Farrington, Potts-Farrington Co., who discussed the type of metal roofs which will capture a mass market. Such a roof, he said, should be one piece of metal over the whole house — or the nearest practical approximation to that ideal. He described an aluminum roofing material and some other types which meet this requirement, also touching on new terne metal products and new application methods for residential roofing.

Detroit Association Urges Attendance

IN A RECENT news letter, the Detroit Warm Air Heating Association reports good attendance at its meetings, but strongly urges those who have not attended recently to "turn out." The theme of the bulletin is the important part played by the association in bringing about such benefits as reciprocal licensing and the enactment of a builders license law.

The bulletin emphasizes the need for membership participation to insure that attempted projects will be successful. It asks members to "tell us what we are not doing that you think ought to be done."

At the monthly meeting, held November 12 at the Fort

Shelby Hotel, members heard Jack Spratt, A. O. Smith Corp., discuss the reaction of water on metals and the proper sizing of hot water heaters. Telephone advertising also was discussed.

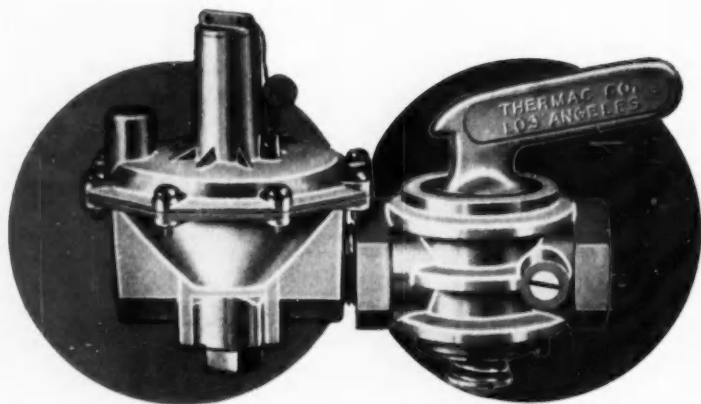
Safety Talk in Rochester

COLORFUL SLIDES on safety and accident prevention were shown by the group insurance managers of the Master Sheet Metal Furnace and Roofers Association, Rochester, N. Y., at the group's monthly meeting, held November 9 at Maplewood Inn, Rochester. At a previous meeting, a film on stainless steel was shown.

Cooling the Subject in Kalamazoo

RESIDENTIAL SUMMER air conditioning and its application in conjunction with warm air heating was the subject of a talk given by Fred Madaus, Kalamazoo City heating inspector, at the November meeting of the Kalamazoo Sheet Metal, Roofing, Heating and Air Conditioning Contractors Association. The meeting was held on November 2, at Chicken Charlie's. Mr. Madaus discussed the need for contractors to obtain permits to install this type of equipment.

The annual election of officers also was held. The new president is Bryant Kistler; the vice president, John Van Dalson; secretary, E. J. French; and treasurer, Richard A. Nipe.



APPLIANCE REGULATOR

Here's the famous Thermac "T" Series Regulator used on millions of gas appliances. Use it now in conjunction with the THERMAC Main Gas Shut-Off Valve.

- ① Lower cost per BTU capacity
- ② Greater BTU capacity per size
- ③ Small octangle body easy to install
- ④ Greater diaphragm sealing area prevents leaks

GAS SHUT-OFF VALVE

Costs considerably less yet it is 2 to 3 times stronger and greater in capacity than ordinary gas control valves. This new Thermac valve, made of special high tensile aluminum alloy long proved in aircraft practice won't gall or stick. Valve rotor is treated with a hard facing and special long life lubricant. Pilot gas take-off may be provided on either side.

Appliance manufacturers are invited to request samples and quantity prices.

Certified by A.G.A.

Thermac
NOW
offers you
these
2
products

Use Thermac Regulators and Shut-Off Valves together for greater economy.

THERMAC
HM

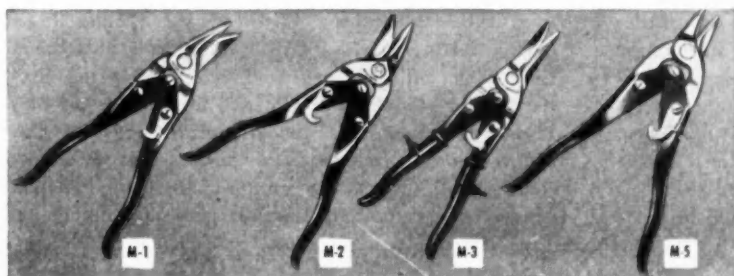
THERMAC COMPANY

800 East 108th St.

LOS ANGELES 59, CALIF.

"We feature WISS SNIPS because they sell best with fewer returns"

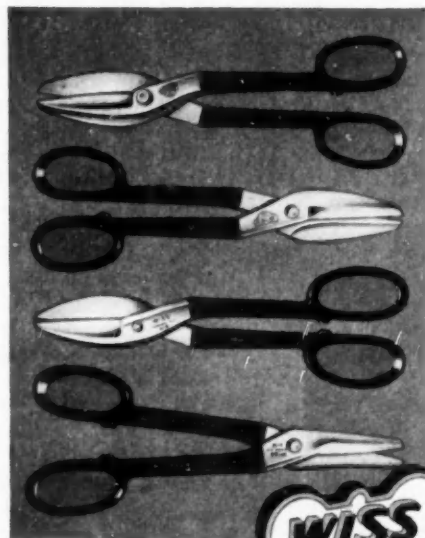
Mr. M. Eagles of M. Eagles Tool Co., 75 Elizabeth Avenue, Newark, New Jersey, agrees with other distributors of Wiss metal cutting snips. There are several reasons why they are the choice of professional workers everywhere—why they sell better, with fewer returns. Wiss snips are produced largely by the handwork of skilled workers. Each pair is rigidly tested and guaranteed perfect. Bolts are set precisely to reduce wear and to increase cutting power with least effort.



WISS METAL MASTER SNIPS: Compound action design delivers amazing cutting power. These 10" snips cut with about one-half the effort required for standard 12½" snips. One edge serrated to prevent slipping. M-1 (cuts left) and M-2 (cuts right) are designed to cut the most intricate scrolls and circles. M-3 is for shallow arcs and straight cutting. M-5 Bulldog Heavy Duty snips are tops for notching, nibbling and cutting shallow arcs in sheet metal as heavy as 16 gauge.



Wiss inlaid blades are made of high carbon crucible steel welded to a hot drop-forged frame to provide the extra service demanded by professional workers.



WISS INLAID SNIPS

High carbon crucible steel welded to a hot drop-forged frame provides that extra service demanded by professional users everywhere. Six Straight Cutting sizes from 11½" to 17", including Bulldog Snips for notching. Three Combination* Cutting sizes, 12½", 13½" and 14½".

WISS SOLID STEEL SNIPS

For those whose requirements are less specialized than the professional user. Hot drop-forged of fine carbon steel, they meet or exceed government specifications. Four straight cutting sizes, 8" to 12½". Three Combination* Cutting sizes, 7" and 13" including 16" Bulldog Snips for notching.

*Made with straight blades, but ground and shaped so they readily cut curves and irregular shapes as well as straight.



Wiss snips are hot drop-forged of the finest steels available.



Highly skilled craftsmen make final adjustments to assure that Wiss snips will cut perfectly for a long time.

J. WISS & SONS CO.,



NEWARK 7, NEW JERSEY

Manufacturers of Shears, Scissors, Pinking Shears, Metal Cutting Snips and Garden Shears

EQUIPMENT DEVELOPMENTS . . .

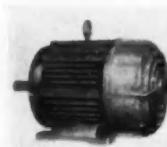
(Continued from page 109)

ers designed for high resistance to heat — XXth Century Heating and Ventilating Co., 96 Ira Ave., Akron 1. No major alterations are required to convert it to gas firing. The unit is 48½ in. high (with vestibule), 23 in. deep, 57 in. long. The air rising in the heating chamber passes over corrugated, saw-tooth, cast iron heating surfaces. Btu input is 138,000 and output is 110,000, according to the manufacturer. Also featured are fiber glass and aluminum foil insulation and a one piece cast refractory lining.

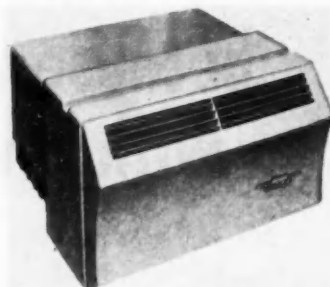
Electric Motors

NEW LINE of electric motors in open drip-proof, totally enclosed fan cooled and explosionproof enclosures in ratings up to 40 hp at 3600 rpm — The Louis Allis Co., 427 Stewart St., Milwaukee 7. These motors are built in accordance with the new NEMA frame size standards, and the smaller frame sizes will be available beginning in January 1954. More power is utilized in the smaller unit because larger lamination diameters and longer stacking with shorter coil ends have been used. Ventilation is more efficient due to better utilization of aerodynamic principles, the company states. The new open, drip-proof motors have single end ventilation. Motor weight has been reduced, and bearing construction has been improved. Back-end bearings are locked in place

by a bearing cap, and locknuts on the motor shafts are designed to minimize end play. A new type split conduit box separates into halves for easier connection.



Above: Motor

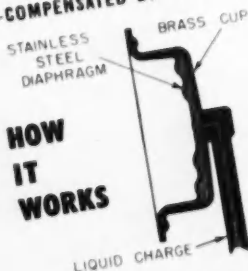


Right: Conditioner

Room Air Conditioners with Fiber Glass Cabinets

1954 LINE of window type room unit air conditioners featuring fiber glass construction (inside and out) which is designed to eliminate rust, minimize condensate, reduce weight and improve sound and thermal insulation — United States Air Conditioning Corp., 3300 Como Ave., S.E., Minneapolis 14. The ½, ¾ and 1 ton models feature electric strip heating as standard; reverse cycle units are produced in ¾ and 1 ton sizes. Inside cabinets extend less than 2 in. into most rooms. Thermostatic control is standard on all models. Other features include a simplified push button concealed control panel and a two speed fan motor. The base pan, window blockoffs and interior parts (including the

SELF-COMPENSATED DIAPHRAGM



The PENN patented, self-compensated diaphragm structure consists of a single diaphragm of low expansion stainless steel backed by a brass retaining cup. The difference in expansion between these two metals creates just enough additional space between them on a change in ambient temperature to accommodate the liquid expansion. Thus, date the liquid expansion (due to ambient temperature change) does not deflect the diaphragm to cause switch operation. Only liquid expansion (or contraction) due to temperature changes at the bulb can affect diaphragm to create switch operation.

Type 518 Safety Limit Control for warm air . . . also available in Type 519 Fan Control. It can be mounted in close quarters in any position or at any angle.



PENN Heating Controls
Are Nationally Advertised In
BETTER HOMES & GARDENS
AMERICAN HOME
NEWSWEEK

equipment developments . . .

partition, blower housing and fan shroud) also are constructed of fiber glass.

Register Boot with 6 In. Collar

"CLIMATROL" PREFABRICATED register boot with a 6 in. collar and a 21/4 in. X 14 in. register opening — L. J. Mueller Furnace Co., 2005 W. Oklahoma Ave., Milwaukee 15. The additional size has been added to provide a boot suitable for connection to most of the continuous baseboard warm air registers where the manufacturer recommends the use of 6 in. round duct. The boots also can be used for installations of conventional perimeter floor registers where 6 in. runs are used.

Oil and Gas Fired Highboy Furnaces

TWO NEW highboy furnaces — The Williamson Heater Co., 3500 Madison Rd., Cincinnati 9. The oil fired unit, pre-assembled and pre-wired, is shipped in two packages. It is available in three models with output ratings of 100,000, 119,000 and 145,000 Btu. It is completely serviced from the front. Spun glass and aluminum foil insulation keeps the cabinet cool enough so that 1 in. clearance to combustible materials is required at the sides, none in back. The burner is the pressure atomizing type, flange mounted. The gas fired unit (shown)

is assembled and shipped in the same way, and requires the same clearances. The upshot, single port gas burner has an orifice plug for natural gas and a blank orifice tagged with drilling instructions for fuel conditions in different localities. It is available with output ratings of 72,000, 88,000, and 112,000 Btu.



Furnace



Gas Vent

Gas Vent for Recessed Wall Heaters

"TRANSITE TYPE B-W" gas vent, an asbestos-cement product designed specifically for gas fired recessed wall heaters — Johns-Manville, 22 E. 40th St., New York 16.

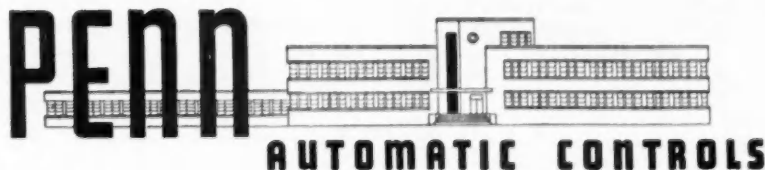
FOR TODAY'S **MODERN** HEATING SYSTEMS CONTROLS with FAST RESPONSE

In thousands of installations . . . both warm air and hot water . . . heating men report that PENN Controls give *faster response, greater accuracy, more dependability* and are *easier to install*.

One of the reasons for this superiority on the job is PENN's patented, self-compensated diaphragm structure which eliminates the effect of ambient temperatures. Another reason is the liquid-filled power element which has greater sensitivity combined with dependable performance year after year. Then there is the compact,

snap-acting contact structure totally enclosed to assure a dust-proof, tamper-proof, dependable switching mechanism.

And there are many other reasons which make PENN heating controls "tops" for any system with every kind of fuel. Try 'em on your next heating job . . . and you'll agree! Ask your burner manufacturer, wholesaler or write **Penn Controls, Inc., Goshen, Indiana**. Export Division: 13 E. 40th Street, New York 16, N. Y., U.S.A. In Canada: Penn Controls Limited, Toronto 13, Ontario.



FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

EASIER to INSTALL

Auto flo "100"

AUTOMATIC HUMIDIFIER



Eliminate Humidifier Service Calls

The revolutionary new Auto-Flo "100" Humidifier replaces the servicing which has an occasional cleaning of the pan and the yearly replacement of the plates. A large size rubber replaces the float valve and there are no parts to float, wear or clog up. Removable plates are equipped with drain clips to eliminate any possibility of dripping.

ONE YEAR FACTORY GUARANTEE ON ALL PARTS

THIS IS
Auto flo's
Stainless Steel DRAIN CLIP
that Prevents
WATER DRIP

Water drains into pan below

AUTO-FLO CORP.

13526 Fenkell Ave. Detroit 27, Mich.

Auto-Flo Corp.
13526 Fenkell, Detroit 27, Mich.
Please send me full information on Auto-Flo "100" Automatic Humidifier.

Name _____

Address _____

City _____

State _____

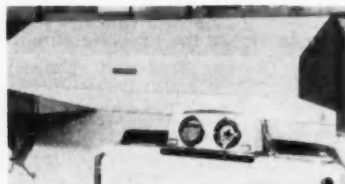
MAIL THIS COUPON

equipment developments . . .

It is UL approved for $\frac{3}{4}$ in. minimum clearance to combustible surfaces, permitting installation in standard wall construction without furring. The vent has an oval "backbone" of asbestos-cement pipe. Around this is a jacket of lightweight aluminum. The two are separated by spacers that extend the full height of the vent. Outside dimensions are $2\frac{3}{4}$ in. \times $7\frac{1}{2}$ in. \times either 4 or 5 ft, so the vent fits between 2×4 studs spaced 16 in. on center. The vent is designed to handle flue gas temperatures up to 550 F.

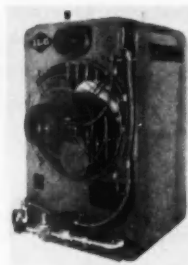
Ventilating Hood for Stoves

MODEL S-600 VENTILATING HOOD designed for installation over kitchen ranges — Stanthony Corp., 2305 W. Alameda Ave., Burbank, Calif. It is equipped with an 8 in. propeller type exhaust fan, rubber mounted for quiet operation. Motor and fan unit lift out for cleaning. There is one size, for a standard 42 in. range opening. The hood is shipped completely assembled and pre-wired. It requires a 7 in. round or $10 \times 3\frac{1}{2}$ in. standard vent pipe.



Above: Hood

Right: Unit Heater



Gas Fired Unit Heaters

NEW LINE of "Ilgdualgas" self-contained gas fired unit heaters designed to provide low cost space heating — Ilg Electric Ventilating Co., 2850 N. Pulaski Rd., Chicago 11. Units are wall or ceiling suspended to save floor space. Each of the seven new models can be used with natural, manufactured, mixed, propane or butane gas. Capacities range from 25,000 Btu per hr with a maximum heat throw of 18 ft. to 200,000 Btu per hr with a throw of 56 ft. Burners are the raised port type. The combustion chamber is heavy gage welded steel with a built-in draft diverter.

Packaged Air Conditioners

NEW 1954 LINE of packaged air conditioners for use in small stores and offices, with an all-in-one, completely sealed cooling system (illustrated) incorporating a hermetic condensing unit — General Electric Co., Air Conditioning Div., 5 Lawrence St., Bloomfield, N.J. All components of the condensing unit, including the compressor, motor and condenser are sealed in steel and lubricated for life. The entire system (including also cooling coil, drain pan and refrigerant piping) is on a single frame that slides out for servicing. The com-



But why MEN over 45?

Our doctors still don't know *why*, but if you are a man over 45 you are six times as likely to develop lung cancer as a man of your age twenty years ago. They *do* know, however, that their chances of saving your life could be about *ten times* greater if they could only detect cancer long before you notice any symptom in yourself. (Only 1 in every 20 lung cancers is being cured today, largely because most cases progress too far before detected.) That's why we urge that you make a habit of hav-

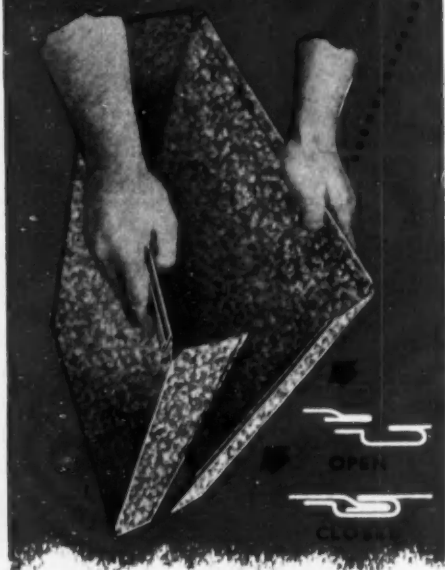
ing your chest X-rayed every six months, no matter how well you may *feel*. The alarming increase of lung cancer in men over 45 more than justifies such precautions. Far too many men die needlessly!

Our new film "The Warning Shadow" will tell you what every man should know about lung cancer. To see this film and to get life-saving facts about other forms of cancer, phone the American Cancer Society office nearest you or simply write to "Cancer"—in care of your local Post Office.

American Cancer Society



Neater - Faster - Easier
Installations with the
NEW One-Piece



Speed-Lok **WALL STACK**

Simply insert tongue of edge into fold till it snaps. Presto! Ready for instant use! No tools or malleting necessary. Can be cut to desired lengths without damage to locking feature.

Superior's exclusive one-piece galvanized snap-lock Wall Stack saves money where it is most important . . . on the job. Being only one piece, it holds perfect shape and enables quicker assembly of stack runs.

To connect fittings or runs of stacks, simply press one piece on the other until it snaps, and it is there to stay.

Shipped in neat cartons, each containing 10 joints 24" long. Sizes 3 1/4" by 10", 12" and 14".

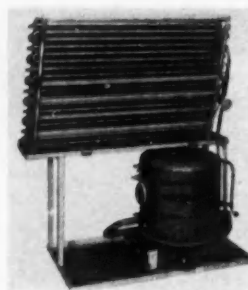
See your wholesaler. Write for descriptive folder.

SUPERIOR METAL FABRICATING
NILES, OHIO *Company*



equipment developments . . .

pressor is spring-mounted inside the shell and there are rubber mountings for the entire refrigeration machine, making for quiet operation, the company states. The air distributor is adjustable. Ductwork can be placed across the bottom, back, or either side, and all connections can be hidden. A damper arrangement is designed to make it possible to eliminate excess humidity on mild days without overchilling. Units can be used singly or in multiple. Models are available in 3, 5, 7 1/2, 10 and 15 ton sizes, the first three having vertical air intakes designed for in-space installations.



Conditioning Unit



Roof Ventilator

Aluminum Power Roof Ventilator

"VENTURETTE" packaged roof ventilator constructed of rust-resistant aluminum, designed for industrial, commercial, and residential use — Uno Ventilator Co., 1236 Eastern Ave., Malden 48, Mass. It features a ventilator, an integral roof base, and a power fan working through a venturi opening. An automatic seal is intended to prevent loss of heat in the winter and the motor is totally enclosed and dustproof. NAFM capacities for the four sizes (at 1/4 in. static pressure) are 360, 262, 1425, and 1425/950 cfm.

Metal Roof Deck with Protective Coatings

METAL ROOF DECK for industrial use, with built-in vapor barrier designed to permanently resist corrosive influences and high humidity conditions — Plasteel Products Corp., McAdam Ave., Washington, Pa. The decking combines steel with three coatings — a bond coat, an asphaltic plastic coating, and a pure mineral mica topping. The surface of the decking is sound absorbent, the company states. Panels are 24 in. wide. They are designed to provide nesting of end laps and to give an unbroken roof surface. The asphaltic plastic coating, into which the mica is embedded under heat, seals itself at all joints, eliminating the need for maintenance and periodic painting, according to the manufacturer.

Ceiling Diffuser Damper

DUAL VALVE DAMPER series for installation with flush or dropped type ceiling diffusers — Air Control Products, Inc., Coopersville, Mich. The dual valves are de-

Packaged Masonry Chimney Economy ... Plus Sales Appeal of a Brick Housing



SIMULATED BRICK Van-Packer Chimney Housing looks like brick when assembled. Cement asbestos panels are pre-painted brick-red (shown above), with natural color mortar lines. Embossed design makes possible realistic repainting to match other brick colors.

Simulated Brick Housing brings permanent safety, low construction cost of a Van-Packer Chimney to all homes



REPAINTED on this \$26,000 ranch home to match light yellow brick, the Van-Packer "brick" housing can be easily matched to any exterior face brick color. Housing is cut to fit any roof ridge or pitch.

Non-brick appearance no longer need prevent any builder from taking advantage of the Van-Packer Packaged Masonry Chimney as a permanently safer, 30% to 50% less expensive chimney than conventional brick. The massive Van-Packer Simulated Brick Housing is the answer.

The housing is 16½" wide by 24" deep. It is assembled on the job from molded cement asbestos panels, embossed to simulate brick. Panels are supplied pre-painted brick-red, with natural color mortar lines. Embossed design of panels permits easy repainting, if desired, to realistically match other brick colors.

The Van-Packer Chimney is listed for all home heating plants and incinerators, by U.L., F.H.A., A.G.A. and all major building codes. Complete chimney can be completely assembled in 3 man hours or less.

Nationally distributed, immediate delivery. Contact your local heating supply or building material dealer or jobber. See your classified telephone directory for local listings.



SECTIONAL CONSTRUCTION (shown above in cut-away) saves 30% to 50% on time and material over brick chimney cost. The Van-Packer may be placed directly over furnace in center of house as easily and inexpensively as against a wall.

VP Van-Packer



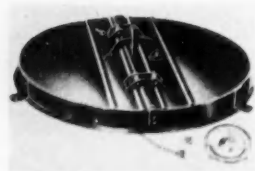
**PACKAGED MASONRY CHIMNEY
WITH SIMULATED BRICK HOUSING**

Van-Packer Corporation
Dept. 3 — 209 S. LaSalle Street, Chicago 4, Ill.

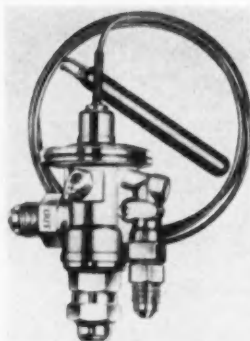
Also manufactured and distributed in Canada by
C. A. McRobert and Son, Ltd., St. Laurent, Quebec

equipment developments . . .

signed to give exact control of the air volume, plus even air distribution over the diffuser face. The damper is intended to allow free flow of the air stream and to prevent rattles and fluttering. It is attached to the duct or blocking, eliminating the need for installation rings. The valves are opened by releasing the operator chain which drops down through the center of the diffuser and is held in place by a chain lock disc. Valves can be adjusted to any open position by attaching the bell to the chain at the desired position. The damper is available for the 6 through 14 in. ceiling diffusers.



Above: Diffuser Damper



Right: Expansion Valve

Thermostatic Expansion Valve

MODEL 205 CE thermostatic expansion valve available with or without external equalizer and with multiple-

coil outlets where required — A-P Controls Corp., 2450 N. 32nd St., Milwaukee 45. Offered in 2 and 3 ton sizes for "Freon 12" and "Freon 22," it employs a leak-free method of sealing the valve actuating pins, the company states. The liquid charged power element allows the valve to be used over the entire suction temperature range from -40 F to the usual air conditioning temperatures. It may be mounted wherever is convenient, regardless of position, valve body temperature, ambient temperature or location of the bulb.

Furnace Vacuum Cleaner

MODEL 152 combination furnace vacuum cleaner and power blower, with a dirt capacity of 1 3/4 bushels, and a 1 1/4 hp power plant — Pullman Vacuum Cleaner Corp., 31-39 Allerton St., Boston 19. It features removable plug-in casters, a disposable dirt bag and multi-stage turbine fans. It weighs 37 lb. The hose stretches to 16 ft. The cleaner converts to a power blower by the use of an automatic hose coupling.

Vibration Isolators for Machines

SERIES LM3 AND LM5 "Barrymount" vibration isolators designed to permit installing and leveling of heavy machinery in a brief time, without bolting or shims — Barry Corp., 1000 Pleasant St., Watertown, Mass. The mountings lift a machine foot to the required height for leveling by a turn of the attaching bolt. They are in-

Announcing...

A CHANGE IN OUR NAME

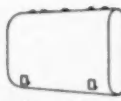
The Kaustine Company originally manufactured chemical toilet systems in which caustic soda was used. The name "Kaustine" was coined as being descriptive of these products. Since discontinuing their manufacture we have decided to change our company name so that it will be more descriptive of our general line. After careful consideration we have selected the following signature:

KAUSTINE FURNACE & TANK CORP.

Our trademark of many years remains the same and there is no change in management or company policies.



Septic Tanks

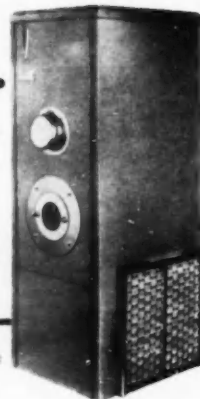


Oil and Gasoline Storage Tanks



Truck Tanks

Modulating Warm Air Furnaces



Custom Built Fabricated Equipment • Pressure Vessels
Metal Tile Connectors



"The Viking '400' Blower Package with its

**GREATER CUSTOMER APPEAL
LOWER INSTALLATION COST
MORE EFFICIENT OPERATION**

**Sure is Carrying the Ball With My Toledo Dealers
and Distributors."** says Jack Carman, Earnest Viking Representative

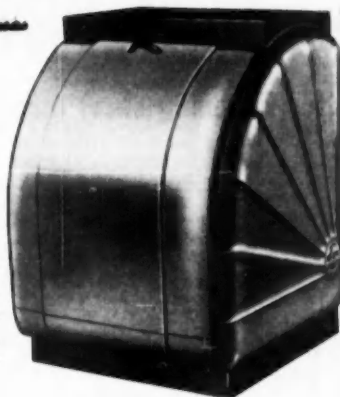
Look what R. E. Myers, prominent Toledo
Distributor says about the



Viking '400' BLOWER

"Lots of room to work inside, easier wiring and easier motor mounting are some of the main reasons my dealers go for Viking Blower Packages, since they permit a more profitable one-man installation. When my dealers pick Viking, it's a sure thing that I do too."

R. E. MYERS,
The Perfection Furnace Pipe Co.,
602 Broadway, Toledo, Ohio.



**TOLEDO DEALERS ARE SOLD SOLID ON THE
Streamlined '400'**

R. H. LUTTENBERGER, Luttenberger & Co.
826 Broadway, Toledo, Ohio.

"It's no wonder that the 'Viking 400', with its streamlined steel cabinet, is the talk of the town. It's about the best looking blower on the market. When you add to this customer appeal the fact of its quiet operation and trouble free parts, it's easy to see why Viking blowers are more profitable for dealers to install."



ROBERT E. FRY, Fry Furnace Co.,
1909 Tremainsville Rd., Toledo, Ohio.

"I especially appreciate the snap-out filter ledge feature of the Viking blower, because it lets me get into the cabinet easily to work. I figure I save up to 45 minutes on an installation. And once I've installed a Viking Blower I know I can forget all about service call-backs. That's what I like about Viking."



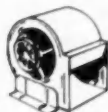
ATTIC FANS



BLOWER WHEELS



WINDOW FANS



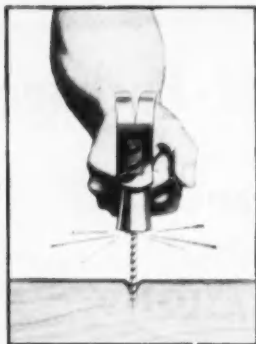
BLOWER ASSEMBLIES



HUMIDIFIERS



PACKAGE BLOWERS



in to
stay
when
you use



Hardened SCREWNAILS

for fastening sheet metal to wood



• You drive it in like a nail, and as it spirals into the wood, it holds like a screw.

• P-K Screwnails are hardened. They won't bend or break, and, driven home, they won't work loose, or back out, even under the toughest vibration, expansion and contraction. Because each one makes a stronger fastening, fewer Screwnails need to be used on most jobs.

• The hard, needle point pierces lighter gauges of sheet metal with ease. For heavier sheets, holes can be punched first with a Screwnail Punch.

• Try P-K Screwnails, next time, for a better, faster, stronger job . . . and remember . . . IF IT'S P-K, IT'S O.K. Sold everywhere through accredited Distributors.

PARKER-KALON*

FASTENING DEVICES

Makers Of The Original Self-Tapping Screws



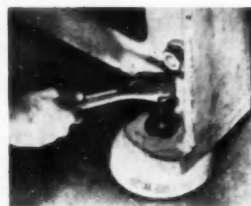
Write for this folder

Gives sizes, head styles, Punch information, full instructions for use. Tells you the many ways Screwnails will help you do a better job. Parker-Kalon Division, General American Transportation Corporation, 200 Varick Street, New York 14, N. Y.

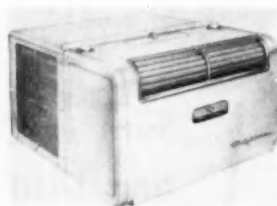
*TRADE MARKS REG. U.S. PAT. OFF.

equipment developments . . .

tended to reduce installation and maintenance costs and to increase mobility of machines (which can be moved to central tool rooms for repair without holding up production). They are engineered to isolate all types of vibration — horizontal, vertical and rotational and to decrease noise level. The isolators permit height adjustments up to $1\frac{1}{2}$ in. and carry loads up to 4200 lb each, the company states.



Vibration Isolator



Conditioner

Room Air Conditioners

1954 ROOM AIR CONDITIONERS featuring new color styling and trim — Frigidaire Div., General Motors Corp., 300 Taylor St., Dayton 1. Two series of models are offered: the "Twin" (illustrated), in $\frac{3}{4}$ and 1 hp sizes, and the "Super", in $1\frac{1}{3}$ and $1\frac{1}{2}$ hp sizes. The first has two complete refrigeration systems, with rotary type compressors. One or both of the systems can be operated. The second series has only one system, and is used where less capacity is required. Thermostatic control is optional on all units.

Power Roof Ventilators

NEW LINE of propeller fan type power roof ventilators with steel venturi type inlet orifice propeller fans — The Bishop & Babcock Mfg. Co., 4901-4915 Hamilton Ave. N.E., Cleveland. Motors are totally enclosed, heavy duty, ball bearing grease lubricated, and are NEMA rated at 55 C rise.

Vaneaxial Blower

VANEAXIAL BLOWER for use in moving air at temperatures up to 350 F, or air containing acids, alkalis, or fine abrasive dust — Hartzell Propeller Fan Co., Div., Castle Hills Corp., 1025 Roosevelt Ave., Piqua, Ohio. A modification of the company's standard belt driven vaneaxial blower, the new blower is available in a range of sizes from 12 to 54 in. A special dummy section containing the guide vanes makes possible the location of the drive on the negative pressure side of the blower. With this arrangement, clean air from outside the duct is drawn in through the belt tube and over the bearings.

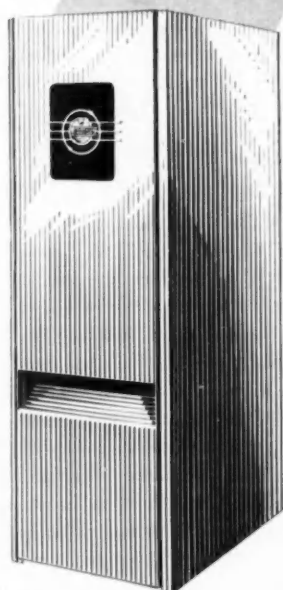
Gasoline Burner

"SWINGBURNER" two phase, pulse jet burner designed to generate intense heat for a wide variety of field and indoor situations — Swingfire Div., Devenco Inc., 150 Broadway, New York. The device first generates pri-

Only One --

only CHRYSLER AIRTEMP

gives you all of these POWERFUL SELLING ADVANTAGES



New Hi-Boy Furnace—in gas and oil-fired models.

New Lo-Boy Furnace—in gas and oil-fired models.



CONSUMER CONFIDENCE	People know the Chrysler Airtemp name—associate it with engineering leadership—have complete confidence in the products which carry it.
DOUBLE PROFIT OPPORTUNITY	Chrysler Airtemp Air Conditioners, so easy to install with the new Chrysler Airtemp Furnaces, give you the chance to sell Year 'Round Air Conditioning when you install the furnace or later—for a double profit.
PRODUCT LEADERSHIP	All-new Chrysler Airtemp Furnaces give you exclusive features that you can demonstrate to your prospects in terms of more efficient, more economical automatic heating.
FASTER, EASIER INSTALLATION	Amazing compactness of design, complete factory assembly and front location of flue outlet combine to permit faster and easier installation. You save valuable man-hours.
8-YEAR WARRANTY	New super-efficient, corrugated design heat exchanger is so durable, your customers get an 8-year warranty.
SMARTER, MODERN STYLING	All-new Chrysler Airtemp models feature new smarter modern styling—with plenty of appeal for homeowners.
MORE NATIONAL ADVERTISING	Consistent national advertising to consumers and builders continuously increases the acceptance of and the preference for Chrysler Airtemp Heating and Air Conditioning.
MORE LOCAL SELLING HELPS	Chrysler Airtemp gives you a broad choice of tested and proved selling helps—each one designed to work for you in your own market over your own name.

Chrysler Airtemp

HEATING • AIR CONDITIONING for HOMES, BUSINESS, INDUSTRY

Airtemp Division, Chrysler Corporation, Dayton 1, Ohio



Airtemp Division, Chrysler Corporation
P.O. Box 1037, Dayton 1, Ohio

AA-12-53

Please send complete details about the Chrysler Airtemp Proposition.

Name _____

Address _____ Phone _____

City _____ Zone _____ State _____

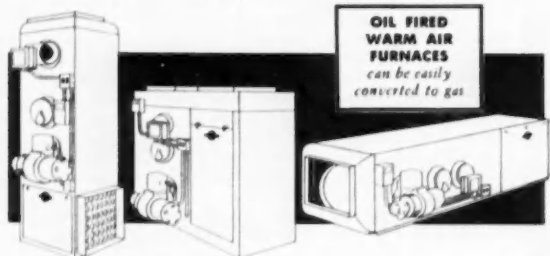
YOU ALSO GET THE BIG SIZES in the BESSER line!

A COMPLETE RANGE OF SIZES . . .

from 75,000 BTU to 500,000 BTU

A COMPLETE LINE OF MODELS . . .

*Horizontal • Vertical • Basement
Downflo • HiBoy • LoBoy • Suspended*



Plus SPECIAL ORDER SERVICE
on any size unit UP TO 1,000,000 BTU

For jobs that require units larger than 500,000 B.T.U., Besser offers fast, reliable Special Order Service. We have the facilities to build any type unit required, up to 1,000,000 B.T.U. output. Every "special order" is built to the same high standards of the regular Besser line. Whatever your need, we can build it!

And now!

**A NEW PROFIT-MAKER
JOINS THE BESSER LINE**

Revolutionary

HORIZONTAL Summer AIR CONDITIONERS

for Residential or Commercial installations

Combining space-saving "horizontal" design with an entirely new cooling principle, Besser Summer Air Conditioners bring central air conditioning within the reach of almost everyone. Designed for installation and operation in conjunction with central heating systems, units are fully adaptable to either warm air or hot water heating. Greatly increased efficiency lowers initial and operating costs through use of smaller units.

Available in 2, 3 and 5-Ton units.

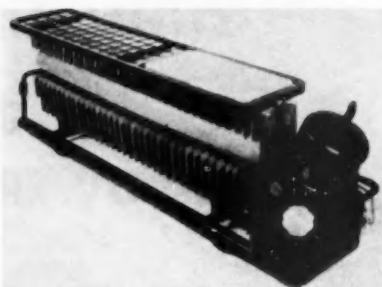
"Only the BEST goes into a BESSER!"

BESSER WARM AIR FURNACES
Summer AIR CONDITIONERS
The Complete Line for Year-Round Profits

BESSER METAL PRODUCTS CORP., P. O. BOX 4064, CHARLOTTE, N. C.

equipment developments . . .

mary heat and then ignites a fuel-air mixture into a torch like flame. Adjustable output ranges from 24,000 to 120,000 Btu per hr. The heater manufactures a hot exhaust stream which is fed into an expansion chamber.



At the same time, the pulse jet action supplies sufficient pressure to its fuel tank to feed a stream of gasoline into the chamber. The hot exhaust merges with the fuel and air. The burner can be installed in any conventional fire box.

Multiple Hole Punching System

MULTIPLE HOLE PUNCHING system with punch retainer plates for producing unlimited hole punching patterns in sheet metal parts — Wales-Strippit Corp., 345 Payne Ave., North Tonawanda, N.Y. It permits the entire setup to be made outside the stamping press or press brake. In addition, punch assemblies and dies are interchangeable, permitting the same parts to be used and re-used in an infinite number of setups. The system is available in individual parts or the manufacturer will build the complete assemblies ready to operate and will guarantee the accuracy of the hole locations. Multiple hole punching boxes are available from 6 × 6 in. to 24 × 24 in. Larger sizes are made to order. Punch assemblies are inserted in the top plate holes and dies in the bottom plate holes. The punch retainer plate is bolted at the corners of the box, on top of the punches.

EQUIPMENT BRIEFS

"ROTO SABRE SAW" hacksaw designed for use with any 1/4 in. electric drill — Rotex Co., 835 W. Davis St., Dallas. It cuts through sheet metal, wood, plastic, etc., and is designed to take one stroke for each two revolutions of the drill to prevent burning of saw blades.

"OIL-TREET" fuel oil additive designed to eliminate sludge and many other conditions which necessitate repair of oil heating systems — Saginaw Salt Products Co., 3000 Carrollton Rd., Saginaw 35, Mich. In use for a number of years, the additive is now being offered in small quantities.

BENCHES for power tools, in two sizes to accommodate the range of standard small power tools used in sheet metal shops — Morrison Products, Inc., 16816 Waterloo Rd., Cleveland 10. They are adjustable for height and width, and are made from 12 gage die formed parts which are arc welded.

Specify

Nationally Advertised

DETROIT CONTROLS

Known to Millions of
Your Best Heating Prospects
Through the Powerful Pages of
BETTER HOMES & GARDENS and **TIME**

Yes, your best heating prospects—over 5 million of them—are reading regularly about dependable, economical **DETROIT** Heating Controls in two of America's top advertising mediums—**Better Homes & Gardens** and **Time**! These are people who have the means to buy and who know, look for and buy better things. That's why they'll want **DETROIT** Controls. And that's why you can step up your sales and profits by stocking **DETROIT** Controls. Remember, only **DETROIT** gives you the exclusive *Timed Cycling* thermostat—the “thermostat with a brain” that controls temperature to a fraction of a degree, eliminating over and under heating. So why not cash in on this overwhelming product superiority and the powerful advertising support that goes with it? Always be sure to ask for **DETROIT** Controls!

If you're not already familiar with the **DETROIT Timed Cycling** Thermostat write today for Form No. 1545-A.



3900 TRUMBULL AVE. • DETROIT 8, MICHIGAN
Division of American Radiator & Standard Sanitary Corporation



FOR SOLID COMFORT
Plus SOLID SAVINGS
Plan to Have

DETROIT
HEATING
CONTROLS



Positive Protection Against Wasteful over and under Heating!

Right now, while you're planning that future castle, is the time to make sure of season after season of convenient, care-free heating comfort. Have your architect, builder or heating contractor select a heating unit equipped with dependable, economical **DETROIT** Controls. For only **DETROIT** gives you the exclusive “thermostat with a brain”—the built-in device that “thinks” ahead, senses temperature changes long before you can, and keeps room temperature just right for health, comfort and fuel economy. Remember, the finest heating equipment can be no better than its automatic controls, so get the best—insist on **DETROIT** Controls.



ESTABLISHED IN 1917 AS
DETROIT LUBRICATION COMPANY

DETROIT Controls CORP.
DETROIT 8, MICHIGAN

Division of American Radiator & Standard Sanitary Corporation

Canadian Representatives in Montreal, Toronto, Winnipeg
— Railway & Engineering Specialists, Ltd.

AUTOMATIC CONTROLS
for REFRIGERATION

AIR CONDITIONING • DOMESTIC HEATING
AVIATION • TRANSPORTATION • HOME
APPLIANCES • INDUSTRIAL USES

Serving home and industry
AMERICAN STANDARD • AMERICAN BLOWER
CHURCH SEATS & WALL TILE • DETROIT CONTROLS
KEWANEE BOILERS • ROSS EXCHANGERS

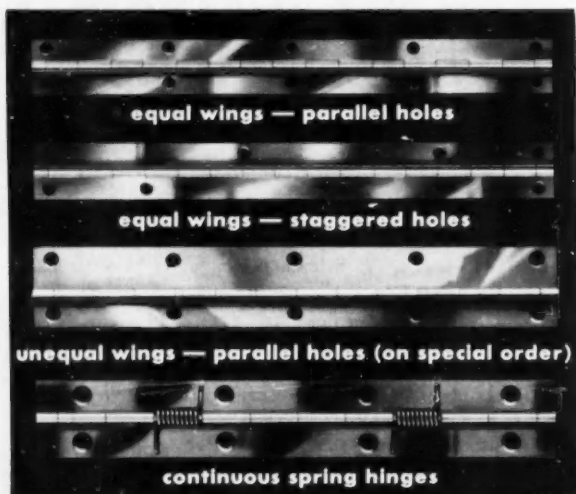


NATIONAL LOCK HARDWARE

for Metal Applications
for use by manufacturers of
Humidifiers • Oil Burners
Air Conditioning Equipment
Gas Heating Units • Stokers
Space Heating Units

continuous hinges

equal and unequal wings . . . $\frac{3}{4}$ " to $3\frac{1}{2}$ " widths . . .
up to 72" lengths . . . with and without holes . . .
available in steel, brass, monel metal, aluminum



Sems and Keps



Thread-Cutting
SEMS



KEPS
Pre-Assembled Nut
and Lock Washer

other items

Handles, Pulls, Catches,
Stove Bolts, Sheet Metal Screws
write for complete information
Buy "all from 1 source"



NATIONAL LOCK COMPANY

Rockford, Illinois

new literature . . .

Home Air Conditioning and Heating

AIR AND WATER cooled year 'round air conditioning units, convertible furnaces, gas conversion burners, window type air conditioners and other heating and cooling equipment are described in an illustrated brochure — Airtemp Div., Chrysler Corp., 1600 Webster St., Dayton.

Automatic Heating Controls

CONDENSED 1954 CATALOG (28 pages) contains specifications, application data, engineering details, etc., on a complete line of automatic controls for oil, gas or coal fired heating systems — Penn Controls, Inc., Goshen, Ind. A horizontal low voltage heating thermostat and a short shank warm air furnace control for mounting directly on the furnace casing are among the new products described.

Reducing Welding Costs

BOOKLET, The Case of the Ailing Weldollar, presents an analysis of the causes of high costs in welding and suggests a plan for reducing them — The Lincoln Electric Co., 22801 St. Clair Ave., Cleveland 17.

Labor and overhead are cited as being responsible for 87.85 per cent of the cost of welding. Suggested cures include high usable welding currents, faster welding speeds, and less machine downtime.

Direct Drive Blowers

FULL DESCRIPTIVE engineering data with dimensional drawings and performance curves are given in a brochure (four pages) for a new line of direct drive blowers used with forced warm air furnaces and air conditioning equipment — Morrison Products, Inc., 16816 Waterloo Rd., Cleveland 10. Blowers are available in two sizes of housings and with either 1/12, 1/8 or 1/6 hp shaded pole motor.

Manually Operated and Power Shears

HOW TO SELECT, set up and operate "Di-Acro" manually operated and power shears is described and illustrated in a 14 page booklet — O'Neil-Irwin Mfg. Co., 541 8th Ave., Lake City, Minn. Also covered is the variety of materials that can be sheared — plastics, fiber, etc., and heavy gages of aluminum, stainless steel, and other metals.

Use of Plenum above Luminous Ceilings

BOOKLET, Design Data and Laboratory Tests on the Use of the Plenum above "Acusti-Luminous Ceilings," presents the results of tests carried on by the Illinois Institute of Technology — Luminous Ceilings, Inc., 2506 W. North Ave., Chicago 47. While luminous ceilings have usually been hung below existing air conditioning ducts, it

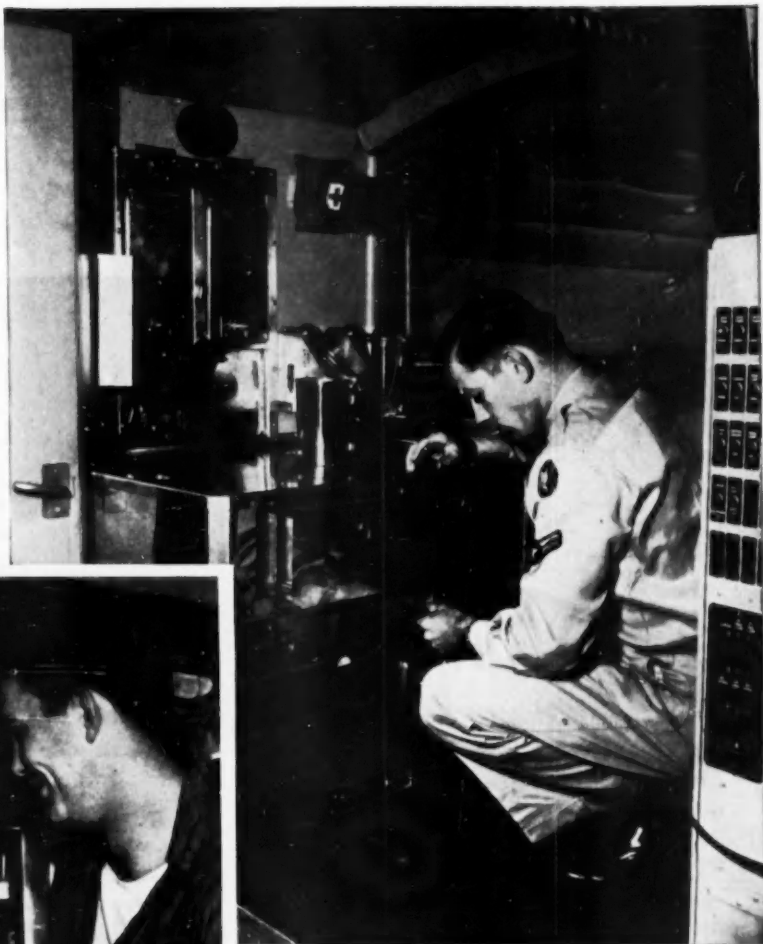
Sky-High



or

Fathoms

Deep



It's always STAINLESS STEEL

where

Food is

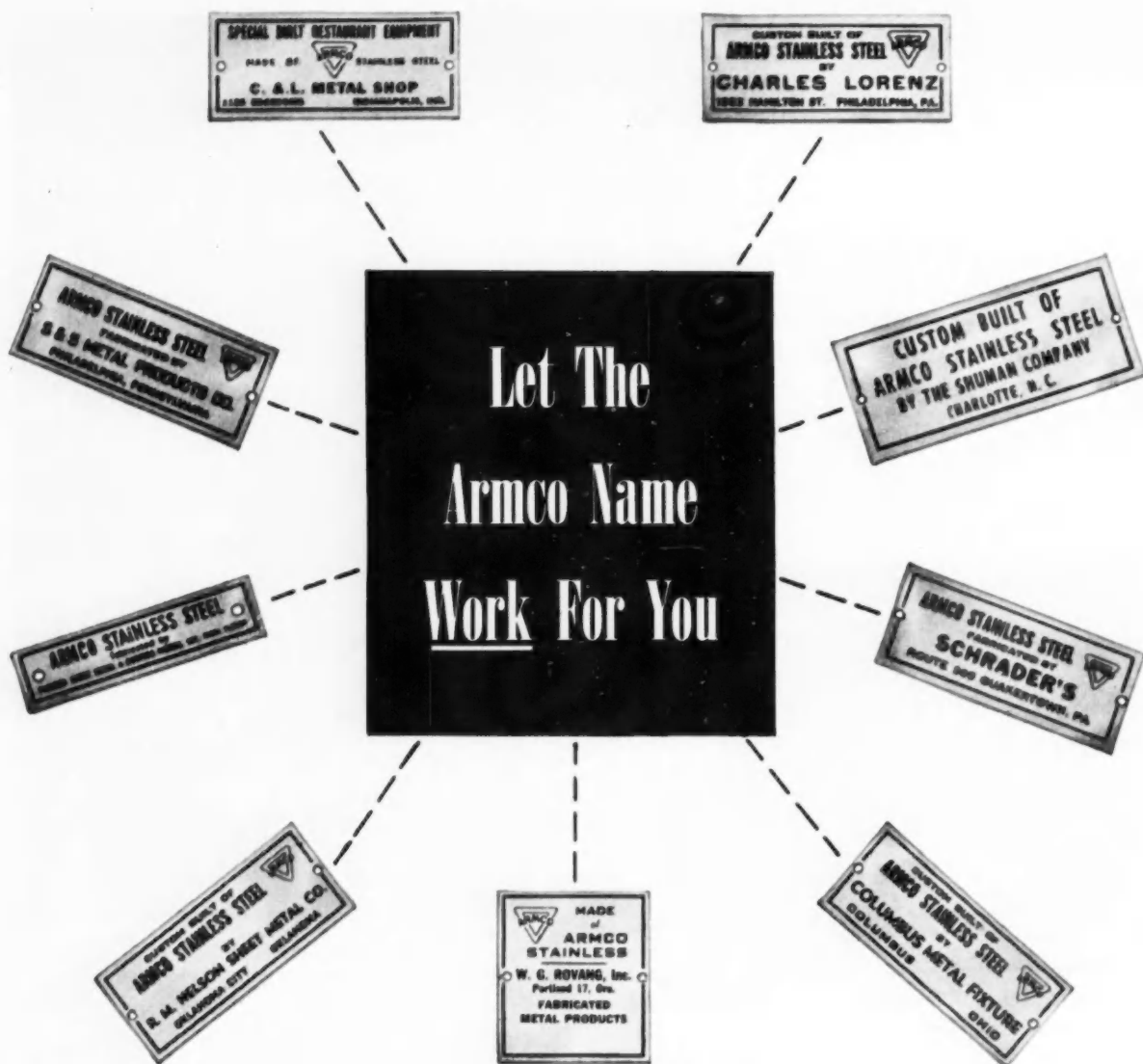
Concerned

From airplanes to subs and all points between, stainless steel is the one metal most associated with the preparing and serving of food. Why? Because it's the one metal that best combines *all* the desired virtues: beauty, strength, hardness, cleanliness, long life, low maintenance, easy fabrication, and high resistance to corrosion and heat. Now those are qualities to conjure with! Where can *you* use them? Where can you employ Allegheny Metal to improve your product or reduce costs in your equipment—and how can we help you? *Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.*

You can make it BETTER with
Allegheny Metal

Warehouse stocks carried by all Ryerson plants





"SALESMEN" DAY AND NIGHT

Tie in your name with Armco! Let "silent salesmen" like these work for you. They will keep long hours day and night in restaurants, cafeterias, food stores and institutions. Over the years, thousands of people will learn to associate attractive fixtures with your company name, backed by the familiar Armco trade-mark.

WHY THE ARMCO NAME HELPS YOU

During almost 40 years of national advertising, millions of people have been reminded to look for the Armco triangle trade-mark on the steel products they buy.

You are cashing in on this tremendous backlog of sales power when you put a permanent combination name-plate on your product.

ASK YOUR SUPPLIER

Talk to your Armco Distributor or your nearest Armco District Office about getting a supply of these Armco Stainless Steel name-plates, made to your specifications. Or, if your products do not lend themselves to the use of a stainless steel name-plate, ask for a supply of Armco Stainless Steel labels. Then your prospects will know that you are using a top-quality metal.

ARMCO STEEL CORPORATION

4923 Curtis Street, Middletown, Ohio • Export: The Armco International Corporation



new literature . . .

has proved practical in areas not already equipped with ducts to allow the soffit above the diffuser to act as an air conditioning plenum. The booklet, designed to aid in figuring air distribution for the ceiling, presents data on the thermodynamics of air flow through the plenum (where a good proportion of the sensible load is concentrated). Pressure loss, flow pattern, heat transfer, etc., are treated.

Galvanized Duct and Fittings

DATA SHEET gives full information on "Super-Lok" galvanized snap lock duct and fittings for forced air, air conditioning, and gravity installations — St. Clair Metal Products Co., 6700 Central Ave., Cleveland 4. Tee joints, tee joint caps, and top collars are illustrated.

Fasteners

SEVEN TYPES of fasteners are illustrated and described in Catalog B2 (24 pages) — Southco Div., South Chester Corp., 1400 Finance Bldg., Philadelphia 2. Sections are devoted to screw fasteners, blind rivets, spring grip fasteners, anchor nuts, etc. Dimensions and complete descriptions are given for each.

Industrial Roofing and Siding

ILLUSTRATED BROCHURE (eight pages) describes "V-Corr" industrial roofing and siding made from a corrugated sheet steel base with a vitrified coating of silicates and metallic oxides fused on both sides and all edges — The Toledo Porcelain Enamel Products Co., Div., Bettinger Corp., 2275 Smead Ave., Toledo. The product is described as resisting fire, fumes, gases, moisture, smoke, etc. Engineering data and details on steel sheets and flashings are given, along with application photographs. There are also diagrammed installation instructions.

Propeller Fans

THREE NEW MODELS are among the propeller fans described and illustrated in Bulletin A-109 (40 pages) — Hartzell Propeller Fan Co., Div., Castle Hills Corp., 1025 Roosevelt Ave., Piqua, Ohio. Also described are three types of roof ventilators and intake air units. Specifications, dimensions and performance data are given on all equipment.

Finish for Fiber Glass Plastics

RESULTS OF TESTS of the wet strength* of chemically treated fiber glass reinforced plastics are presented in a booklet (eight pages) — Libbey-Owens Ford Glass Co., Dept. 5, Wayne Bldg., Toledo 3. "Garan" treated fiber glass was compared with the material coated in other chemical finishes on the basis of compressive, tensile and flexural strength of the laminated plastics. Rapid wetting produces a tighter bond between the glass cloth and the plastic compound, according to the booklet.



international



oil
gas
or coal...

Economy[®]

has
all
three!

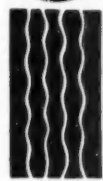
Carry the dependable, profitable line for all three fuels . . . *International Economy*. Hi-Boys, Counterflos, Consoles, Gravity, Forced Air, Blower Units, Unit Heaters, Conversion Burners, Steel, Cast-iron—anything and everything for *your* customer's needs . . . engineered for the fuel they want to use.

It pays to concentrate all your sales fire with International Economy, the *complete* line with over 110 years of heating experience and business integrity at your service.



GAS OR OIL LO-BOYS —

Eight oil lo-boys (from 84,000 to 224,000 Btu output) and seven gas lo-boys (from 12,000 to 210,000 Btu input) are available in completely assembled or not assembled units. All carry International's famous TEN-YEAR WARRANTY, your assurance of customer satisfaction!



International
heater co., Dept. A-12, utica 2, n. y.

Western Warehouse: Chicago, Ill.



SMALL... WALKER Junior Fuel Saver Automatic Draft Regulators come in four types—engineered for use with space heaters, circulators, water heaters, trailer stoves and all other heating equipment within that range.



There's a **WALKER** Fuel Saver **AUTOMATIC DRAFT REGULATOR** for Every Heating Application



LARGE...

The Ball Bearing Type WALKER Industrial Fuel Saver is available in 16" to 48" sizes... for applications in schools, office buildings, apartments, stores and manufacturing plants.



AND IN BETWEEN



There are two types of WALKER Domestic Fuel Savers to meet draft control requirements of central heating plants in homes, apartments, and multiple housing projects.



Only WALKER Makes a Complete Range of Sizes of Automatic DRAFT REGULATORS



WALKER
Automatic
DRAFT REGULATORS

Whether for trailer stoves or for industrial boilers serving the nation's largest housing project—the right Walker Fuel-Saver Automatic Draft Regulator can be selected from stock. Twelve Million sales...thousands of successful applications throughout the range of heating...speak for themselves...give proof of Walker design, craftsmanship and engineering. You can be sure that there is a Walker Fuel-Saver ready for any application you may have.

SEND FOR CATALOG



Twenty pages show all types, sizes in full line. Applications and installations described. A valuable handbook FREE, if you write...

CHECK THESE 9 POINTS

- 1 EASE OF ADJUSTMENT** with exclusive patented pointer and calibrated dial.
- 2 BOX TYPE HINGES** with sealed protection against corrosion, dirt and dust.
- 3 BALANCE PLATE**—scientifically designed to maintain proper balance.
- 4 SPECIFIC PIPE SIZES**—insure correct capacity for every type of installation.
- 5 ALUMINUM FRAME**—rigid, long lasting.
- 6 EASE OF INSTALLATION**—collar and stub for quick attachment.
- 7 ARMCO ALUMINIZED STEEL**—for heat and corrosion resistance.
- 8 FACTORY SET**—for "performance as perfect as possible."
- 9 FREE FLOW** of air in unrestricted inside area.



NEW WALKER VENTURI-TOP CHIMNEY CAP

is winning approval on more and more installations. Proved to be ideal in design and construction to correct insufficient draft and stop down draft... and to solve ventilating problems. Sizes from 3" to 8" ready for immediate delivery.

WALKER MANUFACTURING & SALES CORP.
1730 PENN. ST. ST. JOSEPH, MO.

new literature . . .

Properties of Metals

CALENDAR FOR 1954 contains reference tables giving information on comparison of wire gages, expansion and contraction, physical properties of metals, sizes of drills to be used for corresponding U.S. Standard taps, slopes of roofs, etc. — David Levow, 308 W. 20th St., New York 11. Also covered are diameters, circumferences, and areas of circles, and various rules for calculation.

Simplified Layout Method

ILLUSTRATED BOOKLET, Minute Layouts, describes the use of a pattern developer designed to eliminate waste of time and material in the roll method of layout (which does not require knowledge of geometry for laying out surfaces accurately) — H. Owens Co., Inc., 9300 Venice Blvd., Culver City, Calif. Photographs and drawings show how to set the tool and enlarge scale patterns, and how to make round to round tapers, round to oblong roof flashing, vent bases for roof ridges, and square to round offsets, cone boots, stack head boots, four piece 90 deg elbows, etc. Price of the booklet is \$2.00, which includes new sheet service.

Flexible Shafts, Hole Cutters

CONDENSED CATALOG 54 (eight pages) covers "Wyco" flexible shafts, flexible shaft machines, saw attachments, hole cutters and related items — Wyzenbeck & Staff, Inc., 223 N. California Ave., Chicago 12. The various types of equipment are illustrated, and complete specifications and prices are given.

Prefinished Metals

BROCHURE (eight pages) describes prefinished metals designed to resist tarnish, rust and scratching, and available in a range of gages, tempers and finishes — Apollo Metal Works, 6652 S. Oak Park Ave., Chicago 38. Complete data and typical uses are given for preplated metals (steel, brass, copper, zinc, aluminum, and stainless steel) and pre-enameled metals (aluminum, brass, zinc or steel). Three finishes (metallic, organic, and mechanical) are offered, and surfaces are plane, crimped or striped.

Steel, Aluminum Pre-Engineered Buildings

COMPLETE INFORMATION on standard steel and aluminum pre-engineered buildings is given in a 24 page catalog — Soule Steel Co., 1750 Army St., San Francisco. Construction and erection details are given on the all-bolted units. The various materials, unit combinations and designs for industrial and commercial buildings are illustrated.

Typical side and end panels are shown. Building lengths are in any multiple of 20 ft and can be assembled from any combination of side and end panels.

**TONCAN gutters and downspouts
serve 40 years! Good for more!**

These TONCAN footage products were installed on St. Vincent's Charity Hospital, Cleveland, Ohio, in 1913. They're still in good condition. TONCAN is an alloy iron containing copper and molybdenum. *It resists rust better than any ferrous material in its price class.*



BERGER Spouting, Trough and Gutter

Available in
Long-Lasting
TONCAN



Toncan is the Republic sheet metal that's so famous for long service. Berger uses this quality metal to fabricate a complete

line of ready-to-use roof drainage products for you.

Included in the big Berger line is SnapTite Eaves Trough. It's the patented trough that's easy to hang because you simply (1) slip joints together, (2) snap bead edges into place, (3) seal by crimping with pliers. Solder if desired. No tacking is necessary. It's a slip joint section at a lap joint price.

See your jobber for SnapTite Eaves Trough—and for the complete line of Berger Roof Drainage Products made of rust-resistant Toncan.

**BERGER MANUFACTURING DIVISION
REPUBLIC STEEL**

1010 BELDEN AVENUE CANTON 5, OHIO
Export Department: Chrysler Building, New York 17, N. Y.

Berger Toncan Drainage Products include: Plain round, round corrugated, and square corrugated conductor pipe; "K" Gutter; SnapTite Eaves Trough; ridge roll; roof valley; flashing; plus fittings, hangers and accessories.



Berger
ROOF DRAINAGE PRODUCTS

we hear that...



MIKE CUTTER receives phone congratulations from a friend who has learned that the remodeling of his shop and engineering office has been completed

AS A MEANS of attracting customers and increasing shop efficiency, the Cutter Sheet Metal Co., Cleveland, has recently been remodeled. At a cost of over \$16,000, Mike Cutter has "dressed up" both the shop itself and the engineering office. A year 'round air conditioning system has been installed. The walls are now stained

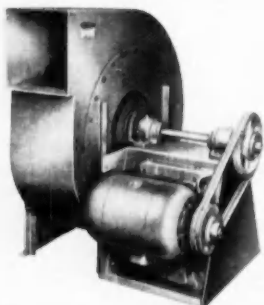
plywood, and the windows are of glass block. Floors are inlaid asbestos tile. Modernization of the office has provided more working room and better lighting over the areas where it is needed most (drafting tables and accounting departments).

THE NEWLY FORMED Kalamazoo Furnace and Appliance Mfg. Co. officially unveiled its line of 24 furnaces along with a line of gas and oil conversion units, water heaters and other products at a recent open house. More than 300 dealers and distributors attended. The factory occupies 50,000 sq ft in the north section of the former Kalamazoo Stove and Furnace Co. plant. Most of the officials and employees present had been associated with the older firm for 10 to 30 years. The new company bought the assets of the former one last February. A new office building, with 2000 sq ft of floor space, recently has been completed.

ROBERTSON HEATING & SUPPLY Co. has moved to 500 W. Main, Alliance, Ohio.

THE DEALER EDUCATION program of Sid Harvey, Inc. for this winter will include 14 lectures on servicing low pressure oil burners and five lectures on the use of combustion testing instruments. The service lectures will demonstrate the function of every working part and how to diagnose and correct trouble. The combustion testing series will show how to use testing instruments to increase

CHOOSE A BETTER FAN TO DO THESE JOBS



Sturtevant Industrial Fans come in four standard arrangements for integral or separate motor drive, belted or direct-connected.

Catalog 1150 gives complete data on this fan and its 3 wheel types. Call your local Westinghouse-Sturtevant office, or use this coupon.

YOU CAN BE SURE...IF IT'S
Westinghouse

AIR HANDLING



FOR EXHAUST AND CIRCULATION

Select the efficient Air Handling Wheel for smoke, fumes, gases or light dusts; for even circulating, heat treating, process and product cooling. Uses smaller motors.



FOR STRINGY MATERIALS

Select the Long Shavings Wheel, especially designed for long, stringy, fibrous materials which must pass through the fan.



FOR MATERIAL HANDLING

Select the Material Handling Wheel, especially designed for exhausting grinding and buffing wheels; conveying granular materials, chips and sawdust.

Westinghouse Elec. Corp.
Sturtevant Division, Hyde Park, Boston 36, Mass.
Please send me Catalog 1150 on the Industrial Fan.

Name

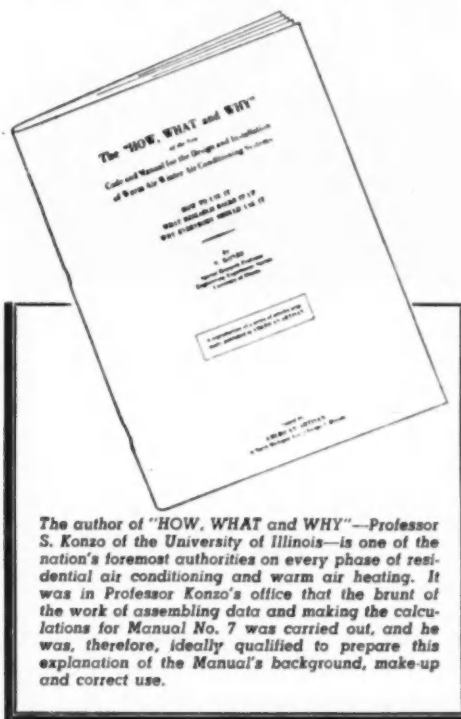
Company

Title

Address

City Zone State

An Exhaustive and Clear Explanation of Manual No. 7 That Shows You—



The author of "HOW, WHAT and WHY"—Professor S. Konzo of the University of Illinois—is one of the nation's foremost authorities on every phase of residential air conditioning and warm air heating. It was in Professor Konzo's office that the brunt of the work of assembling data and making the calculations for Manual No. 7 was carried out, and he was, therefore, ideally qualified to prepare this explanation of the Manual's background, make-up and correct use.

Table of Contents

- The New Manual Simplifies Engineering
- How to Figure Heat Losses
- Furnace Selection and Rating
- Blower Selection and Blower Ratings
- Successful Blower Operation
- Registers—Locations, Types, Sizes
- Procedure for Making Plant Layouts
- Equivalent Length of Fittings
- Equivalent Length of Registers
- Sizing the Branch Ducts
- How Tables 8 and 9 Were Established
- Sizing Return Air Ducts
- Trunk Duct and Bonnet Construction
- Sizing of Trunk Ducts
- How to Adjust and Balance a Warm Air Winter Air Conditioning System
- Reference List
- Cross Index

- HOW to Use It Correctly
- WHAT Experience Is Behind It
- WHY Every Dealer Should Use It

"The HOW, WHAT and WHY of the

Code and Manual for the Design and Installation of Warm Air Winter Air Conditioning Systems"

by S. KONZO

Special Research Professor—Engineering Experiment Station, University of Illinois

75 Pages — 8½" x 11" — \$1.00

Users of Manual No. 7 will find this "HOW, WHAT and WHY" booklet invaluable toward acquiring a clearer understanding of the Manual and properly applying it in the planning and installation of warm air winter air conditioning systems. Published originally as a series of articles in the magazine AMERICAN ARTISAN, this clear and comprehensive analysis has proved so helpful to dealers everywhere that now, in response to a wide demand, it has been reproduced in full in this new 75-page booklet "HOW, WHAT and WHY."

Professor Konzo begins "HOW, WHAT and WHY" by telling why a standard designing procedure for warm air winter air conditioning systems was needed by the industry. He reveals how the country's leading manufacturers of warm air heating equipment got together to work out such a method . . . how nearly 200 of the industry's key engineers held scores of meetings over a long period to coordinate data and experience in working out the dependable, simplified design and installation procedure which Manual No. 7 now offers.

Following this introduction, "HOW, WHAT and WHY" goes into a detailed explanation of the designing procedure itself, section by section. It shows the research and experience behind every rule, recommendation, and table the Manual contains. It tells why such factors as temperature drop in ducts, c.f.m. air delivery, air changes per hour, and various other factors which were once considered vital in the planning of forced air heating systems no longer need concern the designer. It provides much interesting supplementary information and comment which helps make each step in the suggested procedure easy to follow and assures the user of the Manual's complete soundness.

An especially useful feature of this explanatory booklet is a Cross Index which permits finding quickly full information about any item in the Manual which is not wholly clear. All in all, this "HOW, WHAT and WHY" booklet will not only assist owners of the Manual to use it to the fullest possible extent, but it will, in the bargain, add materially to their knowledge of every phase of winter air conditioning.

ORDER BLANK

AMERICAN ARTISAN
6 No. Michigan Ave., Chicago 2, Ill.

Attached is my remittance of \$1.00
for which please send me one copy
of "HOW, WHAT and WHY."

Individual _____
Firm _____
Street Address _____
City and State _____

we hear that . . .

sales of new and replacement parts and how maximum economy of operation can be obtained on new and existing installations.

The company recently was authorized by Robertshaw-Fulton Controls Co. to rebuild "Grayson" water heater and space heater "Unitrols". The actual rebuilding will be done in the main Harvey plant at Valley Stream, N. Y., but all the company's stores will carry a stock of the rebuilt units available for exchange for worn out or defective controls.

UNION ASBESTOS & Rubber Co. has entered the domestic, air conditioning field. The company has taken over the operation of the Nevinger Mfg. Co., Greenville, Ill., which has been supplying branded air conditioning units and components to other manufacturers. The new facilities will be devoted exclusively to the manufacture of these units and components. Carl Nevinger, founder and former president of the Greenville firm, will remain in charge as general manager of the operation. Edwin E. Hokin, vice president of Union Asbestos, will be in charge of the company's air conditioning division. The new products will be marketed through heating dealers, according to Mr. Hokin, "because the dealer is not only in the best position to specify the type of product needed for specific installations, but is best equipped to install and service it."



A RECENT MEETING of the Bryant Heater Div. distributory advisory board was held at company headquarters in Cleveland. Those attending comprise distributors and officials of the division and the parent company

THE DISTRIBUTOR advisory board of Bryant Heater Div., Affiliated Gas Equipment, Inc., is now entering its third year. The board offers field information to the company to help in planning merchandising and sales efforts and in gaging consumer acceptance of present and proposed products.

An annual dealer meeting held in Indianapolis recently and organized by Philip R. Hedback, a company dis-

BRANDES WALL BASE HEATING *for* **FORCED WARM AIR SYSTEMS . . .**

**. . . blankets the wall
with an even flow of heat
for maximum Living com-
fort!**

Brandes wall base heating for forced warm air systems is modern . . . low in cost . . . easy to install . . . highly efficient! Its original design insures that the air flow blankets the wall with an even flow of heat. Write today for complete information.

BRANDES COMPANY

2046 Winnebago

MADISON 4

WISCONSIN



Get **BRANDES***
WALL BASE HEATING
***The FIRST, and Patented**

we hear that . . .

tributor in Indiana, was attended by more than 150 dealer representatives who participated in a program which included group singing, messages from visiting company officials, professional entertainment, and a barbecue.

THE NEW YORK City office of Dravo Corp. is now located at 19 Rector St.

WAGNER ELECTRIC CORP. has purchased from the Fulton Iron Works Co. a five acre improved tract adjacent to its present property in St. Louis. The tract contains five buildings, aggregating 125,000 sq ft of floor space. The Fulton Co. probably will continue to occupy the premises for one year.

FOUR BRANCH OFFICES of Skil Corp. are moving to new buildings with improved sales and service facilities. The New York office is moving to 2800 Park Ave.; the Baltimore office, to 2323 Greenmount Ave.; the Portland office to 5616 N. E. Glisan St.; and the Indianapolis office to 1620 E. Riverside Drive.

A \$1000 BOND is being offered through the Traveler's Indemnity Co. by the Coleman Co. to insure performance of its central heating system, in support of advertising and sales promises. Performance guarantees include maintenance of an average 70 F temperature inside the residence with outside design temperature as set forth in the NWAHACA manuals, and maintenance of 5 F or less variation in temperature when outside temperature is as low as 30 F. Other variations are guaranteed at lower outside temperatures.

EDWARD LAMB Enterprises, Inc., has acquired control of the C. L. Bryant Corp. of Cleveland, manufacturer of furnaces, incinerators and other products.

FRANK H. ADAMS, president of Surface Combustion Corp., was recently given the distinguished service award of the Gas Appliance Manufacturers Association for his achievements as a "pioneer in the development of gas as a tool now employed in more than 26,000 industrial processes." The award was made during the annual meeting of the American Gas Association in St. Louis.

MITCHELL MFG. CO. has initiated a new merchandising plan which involves the setting up of a reserve fund to compensate distributors and dealers, in part, for units left on their shelves at the end of the air conditioning season. It is intended to provide a "cushion" which will enable them to put end-of-summer price cuts into effect without loss. The company will set aside \$3 for each air conditioning unit shipped to distributors and dealers

TUTTLE & BAILEY
Registered
AN ALNOR CORPORATION

"the following equipment is
recommended for testing
AEROFUSE DIFFUSERS...
Alnor **VELOMETER"**



That's the recommendation of Tuttle & Bailey for measuring *actual* air delivery of their diffusers—precisely and quickly in the field.

They know from their own tests—in their own complete laboratory—that a few simple readings with a Velometer equipped with a 2230 jet minimizes the time-consuming job of balancing out a system on installation.

The Velometer is the *only* instantaneous, direct-reading air velocity meter—accurate in all ranges, from high to low—compact, portable, easy to understand and use. Wide assortment of jets and fittings makes this precision instrument ideally suited for all air velocity measurement.

Get an Alnor Velometer for your air measurement needs. You'll save time and money wasted in balancing air distribution on your *next* job. If you'd like a copy of Tuttle & Bailey instructions on balancing Aerofuse Diffusers with the Velometer, just send the coupon below.

ILLINOIS TESTING LABORATORIES, INC.
Room 538, 420 N. LaSalle St., Chicago 10, Illinois
☐ Send Tuttle & Bailey Instructions
☐ Send Velometer Bulletin 2448-G

Name.....

Company.....

Address.....

City.....State.....



ILLINOIS TESTING LABORATORIES, INC.
PRECISION INSTRUMENTS FOR EVERY INDUSTRY

**PYROMETERS • VELOMETERS • DEW POINTERS • PYROCONS
PYRO LANCES • THERMO-ANEMOMETERS • CONTROLLERS**

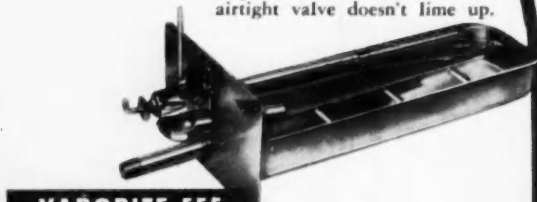
Automatic Humidifiers

A COMPLETE
LINE WITH
A TYPE AND
SIZE FOR
EVERY
WARM AIR
FURNACE



THERMO-DRUP

Gives furnace owners the most efficient, most dependable way to put moisture in the air. New airtight valve doesn't lime up.



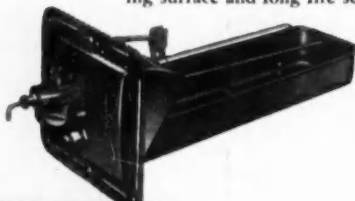
VAPORITE 555

Completely assembled for lowest cost installation. Positive thermostat control feeds water to vapor pan in proportion to heat. Gives proper balance of moisture.



VAPORITE 500

Quick heat transfer stainless steel pan available in sizes tailored to fit most applications. Makes most efficient evaporating surface and long life service.



NEW VAPORITE 577

New pre-assembled model for straight or sloping bonnet. Extra ridged mounting adjusts simply for any bonnet angle. Absolute minimum installation time.



MODEL CF500

FOR COUNTER FLO FURNACES
Makes healthful humidified warm air available in homes with perimeter systems. Requires no pan. Takes no space. Bottom of plenum chamber in concrete floor is evaporating surface. Write today for free literature.

A-123

AUTOMATIC HUMIDIFIER CO.
CEDAR FALLS, IOWA

we hear that . . .

between November 1, 1953 and August 31, 1954 (regardless of the size or cost of the unit). This reserve fund will be divided on a unit basis to be determined by the total number of room air conditioners still unsold by September 15, 1954.

The "Weather Prophet," a new customer direct mail premium, will be available soon to the company's room unit dealers. The device is said to predict major weather changes 12 hours in advance. This summer, 3 million mailing pieces will offer the device free to dealers' prospects.



DISTRICT SALES managers attended a recent Fluid Heat Div. meeting in Baltimore

FLUID HEAT DIV., Anchor Post Products, Inc., recently held a district sales managers' meeting in Baltimore. The primary purpose was to unveil new and redesigned heating equipment and to discuss sales promotion plans for 1954.

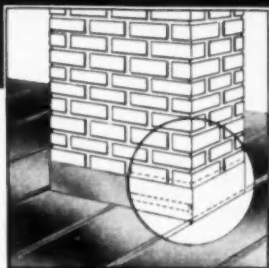
KAUSTINE FURNACE & TANK CORP. is the new name of Kaustine Co., Inc. Originally formed in 1914 for the production and sale of chemical toilet systems, the company over the years has added and expanded production and sales of other lines at its plant in Perry, N.Y. At present, the larger portion of its production is warm air furnaces (oil and gas fired), basement and underground oil storage tanks, and other equipment.

THE AIR CONDITIONING DIV. of General Electric Co. has prepared a direct mail campaign covering packaged air conditioners. Dealers who order the campaign will have their firm name and address imprinted on the material. The campaign covers three complete mailings, including lists, mailers, reply cards, envelopes, imprinting, addressing, processing, 3rd class postage and mailing.

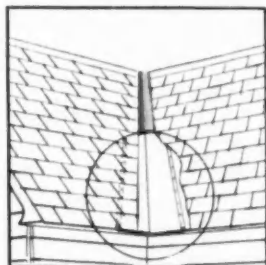
The division has announced a \$1,250,000 order for packaged air conditioners from Apparatus Distributors, Inc., a company distributor for New York City and northern New Jersey. It is one of the largest single orders of its kind in the air conditioning industry, the company states.

A new plan for franchising selected domestic oil burner control distributors has been established by the

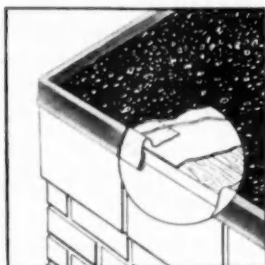
WEATHERSEALING JOBS ARE *PROFITABLE...* FOLLANSBEE TERNE METAL



Continuous Chimney Flashings



Valleys



Gravel Stops

There are big profits to be made in weathersealing *any type of roof*—especially when you use Follansbee Terne Metal. Because of its greater ductility, installation can be made more easily. The tightly bonded coating of terne will not flake or peel in the most difficult seaming operation.

Follansbee Terne Metal will bond with other metals without setting up any serious electrolytic action. Available in 50 foot rolls, without cross seams, that can be cut to any required length.

Follansbee Terne Metal is carried in stock nationally by all leading sheet metal distributors.

● **40 lb. coated Follansbee Terne Metal Roofing is available now!**

FOLLANSBEE STEEL CORPORATION

GENERAL OFFICES, PITTSBURGH 30, PA.

Cold Rolled Strip

Seamless Terne Roll Roofing

Polished Blue Sheets and Coils

Sales Offices—Chicago, Cleveland, Detroit, Indianapolis, Kansas City, Los Angeles, Milwaukee, Nashville, New York, Philadelphia, Rochester, San Francisco, Seattle, Toronto and Montreal, Canada.
Mills—Follansbee, W.Va.

FOLLANSBEE METAL WAREHOUSES

Pittsburgh, Pa. Rochester, N. Y. Fairfield, Conn.



If you are using or contemplating the use of heat-resisting stainless steels for combustion chambers for oil burner furnaces, we are specialists in producing these types of steels.

Whether you are a large or small user of these steels, our facilities can offer exceptional service by especially shearing to your specified combustion chamber blanks, or multiples thereof.



Ingersoll STEEL DIVISION

BORG-WARNER CORPORATION

310 South Michigan Avenue, Chicago 4, Illinois
Plant: New Castle, Indiana

CONNOR
ENGINEERING
CORPORATION

kno·draft®
adjustable air diffusers

Get your
JOB OK's
QUICKER

Contractors everywhere report faster installation and faster job O.K.'s with Kno-Draft Adjustable Air Diffusers. Mechanical simplicity is the answer. And Kno-Draft Diffusers are adjustable *after* installation.

To install Kno-Draft, simply attach outer cone to duct and fasten preassembled diffuser unit to three suspension bolts. A few twists of a screwdriver adjust air direction to any discharge angle from horizontal to vertical. Single annular air stream permits direct volumetric reading. Damper is regulated by hand screw.



1 Easy Installation



2 Easy direction set



3 Easy balancing



4 Easy volume set

CONNOR ENGINEERING CORP.

Danbury, Connecticut

Also Manufacturers of
Dorex Air Recovery Equipment



● NEW EDITION! Kno-Draft Data Book now in new 32-page format. Complete, up-to-the-minute specifications, engineering and installation data on Kno-Draft Adjustable Air Diffusers. Bring your files up to date. Mail coupon today.

CONNOR ENGINEERING CORP.
Dept. S-123, Danbury, Conn.

Please send me the new edition of the Kno-Draft Data Book —without obligation, of course.

Name _____
Position _____
Company _____
Street _____
City _____ Zone _____ State _____

we hear that . . .

company's Appliance Control Dept. to help market its new line of home heating controls. It calls not only for setting up servicing distributors, but also for a complete education program whereby service men are made familiar with the controls. A traveling service school is at present on a nationwide instruction tour to contact an estimated 20,000 service men at some 250 stops.



D. V. Petrone



M. E. Mooney

DON V. PETRONE has been named as president of Typhoon Air Conditioning Co., Inc. J. F. Dailey, former president, was elected to the newly created office of chairman of the board. Mark E. Mooney, formerly vice president and sales manager of Baker Refrigeration Corp., has joined the company as vice president in charge of sales, replacing Mr. Petrone in that post. Mr. Dailey had been president since 1931.

ROYAL JET, INC., is the new name of Royal Heaters, Inc. The name was changed in line with "the complete streamlining and rebuilding that has taken place throughout the company," according to R. T. Lowrie, president. At present, the company manufactures a line of gas heating equipment.

MARLO COIL CO. has started construction on a new plant to be devoted in part to residential air conditioning. It will total 260,000 sq ft when completed — four times the company's present plant size. It will be located on St. Louis' south side.

THE MAJESTIC Co. has published a 16 page mat book for use by dealers in ordering advertising mats for newspaper ads. The booklet points out the value of a carefully planned and executed newspaper advertising campaign and states that with the mats available, the dealer can have such a campaign "for the cost of the space alone." The mats have been prepared by a national advertising agency and are arranged in general groupings (for service, small home heating, etc.) to facilitate selection.

GROUND WAS BROKEN recently for the new Westinghouse Electric Corp. air conditioning plant at Staunton, Va. It is designed to increase the company's productive capacity for packaged air conditioners five-fold. Headquarters for the air conditioning division will be moved from

SAVE TIME—MONEY 5 WAYS



with Steinen Draft Regulators

- Scaled for FAST—EASY—ACCURATE draft setting.
- True balance at all draft settings—
Front and rear weights move at same time
- Less bearing surface
Non-clog, non-bind bearings
- Exclusive leveling feature
- Two models fit 90% of all requirements.

OTHER STEINEN PRODUCTS:

OIL BURNER NOZZLES
INSPECTION MIRRORS
NOZZLE KITS
ADAPTERS

Contact your jobber or write us for additional information.



ESTABLISHED
1907

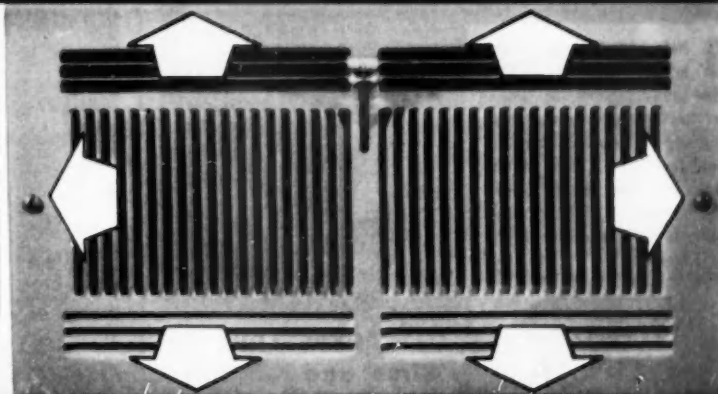
WM. STEINEN MFG. CO.

43 Bruen St., Newark 5, N. J.

MANUFACTURERS OF ACCESSORIES FOR OIL HEATING AND AIR CONDITIONING

standard's perimeter wall register
gives you... **#551**

**complete
hemispheric
heating and
cooling comfort**



4 WAY DIFFUSION FOR BALANCED AIR CIRCULATION

- METALLIC FINISH
- STANDARD SCREW HOLES
- SINGLE SHUTTER CONTROL
- SMART APPEARANCE
- FOR SIDEWALL AND BASEBOARD INSTALLATION

STANDARD'S THE BEST FOR PERIMETER REGISTERS. Standard leads the field with its new, improved PERIMETER WALL REGISTER! Its 4-way diffusion supplies correct warm air distribution along the outer cold walls and even temperature control throughout each room. Standard also provides a perimeter register for baseboard outlets. Easily installed. Immediate delivery in sizes to suit your needs. Write NOW for complete information!

Standard Stamping & Perforating Co. 3131 W. 49th Place Dept. AA
Chicago 32, Illinois

**Save
Time and Money
making
AIR TURNING VANES**



**with ... "DURO
VANE
RAIL"**

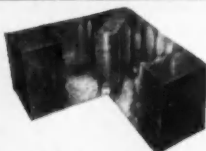
**Installed Cost cut
50% to 75%**

**Here are the
3 easy steps**

1 Shear Vanes from scrap. (No tabs to cut). Roll to form arc (approximately a quarter circle). Place Vane in "Slot" in Duro-Vane-Rail.

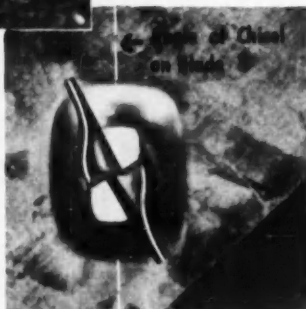


2 Place chisel at angle designated. One hammer blow cuts and bends the protruding part of the Vane in the "slot" to form permanent, rigid lock (Duro-Lock).



This is how finished Vane Assembly looks installed in Square Elbow.

3 Note how, with one blow on chisel, the part of the Vane protruding into the "slot" has simultaneously been cut and bent over to form a permanent, rigid lock. NO RATTLE. When Vanes have been secured to top and bottom "Rails", simply fasten completed assembly in the Elbow.



**Saves You
Time and Money**

- Greatly reduces Assembly Time.
- Shear Vanes from scrap (no tabs).
- Eliminates layout.
- Completed Turning Vanes conform to Engineering Specifications.

WRITE

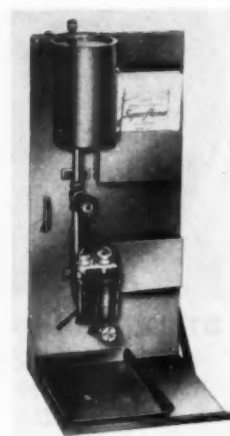
for Free Demonstration Kit and complete Manual on how to save on constructing Turning Vanes.

DURO-DYNE CORPORATION Dept. B
38 SOUTH FRANKLIN STREET, HEMPSTEAD, L. I., N. Y.

we hear that . . .

Hyde Park, Mass., to Staunton. However, the Sturtevant Div. at Hyde Park will continue to make fans, blowers, coils, industrial heaters, electronic air cleaners, and other products.

QUEEN STOVE WORKS, INC. is offering dealers a valve test kit which enables them to service all types of oil heaters and is designed to help them gain consumer acceptance and confidence. It is designed for the servicing, cleaning and adjustment of constant level valves used on all types of oil burning space heaters. The kit includes a tank, cross level, drip tray, and safety lock mechanism to secure the valve for servicing.



OHIO SANITARY SUPPLY, Inc., distributors and wholesalers of heating, roofing and sheet metal supplies, held an open house on November 6 and 7 at its new warehouse and display rooms, 2011 Lake Ave. (old Route 57), Elyria, Ohio.

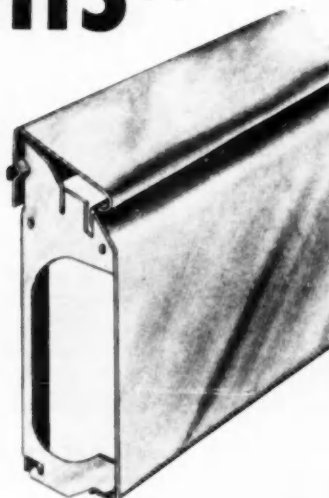
"GUIDED SALESMANSHIP," a sales training program comprising eight sound slide films, is being offered to wholesalers and some manufacturers by the American Institute of Wholesale Plumbing and Heating Supply Associations, Inc., Washington, D.C. The slide films treat, in order, the relationship between our rising standard of living and demands for new products, what makes people buy, making the most of selling time, increasing the share of business done by each concern, what cut prices mean, how to "beat competition," breaking down the objection wall, and methods for closing sales.

A GROUP OF Philadelphia heating wholesalers met recently for an outing and golf tournament at the Melrose Country Club. The Alan Heating Products Co., Philadelphia, puts out a newsletter each month covering the activities of wholesalers in the area.

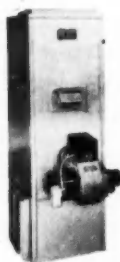
AIRTEMP Div., Chrysler Corp., has adopted a new distribution pattern for its air conditioning and heating products. The company has in the past dealt directly with individual dealers classified according to the type of products sold. Now, however, wholesale distributors will be located in every important air conditioning market area and each will service a number of the company's dealer accounts in the particular area. The new arrangement is intended to give a "deeper penetration into the four separate heating and 'packaged' air con-

FOR THE BEST IN WARM AIR PROFITS..

...Combine
a General
Automatic
Warm Air
Unit
With



floorlevel
WARM AIR BASEBOARD HEAT



HORIZONTAL,
COUNTERFLOW
and HIGHBOY
MODELS

DESIGNED FOR
SMALL HOMES
WITH UP TO
85,000
B.T.U. OUTPUT
REQUIREMENT.

LOWBOY MODEL

CAPACITY
UP TO
200,000 B. T. U.
HIGHLY
COMPACT
AND EFFICIENT
UNITS.



WRITE FOR INFORMATION ON DEALER FRANCHISES AND
THE COMPLETE G/A LINE!

GENERAL
Automatic

GENERAL AUTOMATIC PRODUCTS CORP.
2300 Sinclair Lane • Baltimore 13, Md.

Representatives in principal cities

"We save from 25% to 35% on Installed Cost on our Multi-blade Damper units by using "Duro-Blade-Kit" Damper Hardware. Moreover it assures us of producing as fine a Damper as money can buy," says...

Charles Blouin, President
The C. P. BLOUIN CO., Cambridge, Mass.



The Boston Federal Reserve Bank, Boston, Mass., is truly a monument to the banking business. The C. P. Blouin Sheet Metal Co., assured this building the Maximum in Damper efficiency by constructing them with...



This view of part of the C. P. Blouin Co., plant is a fine example of a modern sheet metal shop. Modern, too, in their Damper construction... they use "Duro-Blade-Kit" Damper Hardware.

"DURO BLADE KIT"

PRECISION-
ENGINEERED
**DAMPER
HARDWARE**

**SAVES YOU
TIME AND MONEY**

- Greatly reduces assembly time.
- Produces highest quality Damper known.
- Automatic, self-centering DURO DRACKET assures smooth, non-binding operation.
- Self oiling DURO BUSHING "tap-fit" into Frame.
- Can be used on the heaviest Dampers.
- Corrosion-resistant materials.
- Fits 3 inch blade or wider. Can be screwed, bolted, riveted, welded or spot-welded.



Model shows how either parallel or opposed blade action is accomplished.

WRITE for Free Demonstration Kit and illustrated Manual on the construction of "Approved" Dampers



Mfgs. of "Duro-Vane-Blat," "Duro-Blade Kit," "Grayhound" Portable Spot Welders and A. C. Arc Welders

DURO-DYNE CORPORATION Dept. B
38 SOUTH FRANKLIN STREET, HEMPSTEAD, L. I., N. Y.



Don't make any commitments until you see these new Majestic furnaces! They're on the way now . . . a full line of utility furnaces, gas or oil fired, completely automatic . . . to furnish complete winter air conditioning (matching summer units, too) for the modern home . . . for *any type* of modern warm air heating system!

You'll be glad you waited for these new models. Modern as tomorrow, they still are backed by all of Majestic's many years of heating experience. And don't forget—all of them have matching-mate summer air conditioners for year-round comfort installations.



LET US
TELL YOU
ALL THE
DETAILS

We'll be ready soon to send you full details about these profitable, easy-to-sell furnaces. Write today! Get on our mailing list so you'll be sure to be among the first in your locality to learn all the facts.

The **Majestic Co., Inc.**
394 Erie St., Huntington, Indiana

NOW you can do something
about the **weather**



It's sealed out of the
Rochester UNIVERSAL®
oil tank gauge

WEATHERPROOF! New head and flange design provides a shockproof, hermetically sealed unit that positively locks out dirt, moisture, and other foreign materials. This assures extra years of trouble-free service under *all* weather conditions.

STOCK JUST ONE GAUGE for all installations! It pays to standardize on ROCHESTER UNIVERSAL Gauges. Indoors or out, they'll remain accurate and easy-to-read for years to come.

NO SEEPAGE! NO FUMES! A powerful permanent magnet transmits float-arm action from tank to indicator . . . there are no holes in the gauge.

EASY TO READ. "DUAL DIAL" can be seen from front or back . . . makes tank filling and checking a snap.



EASY TO INSTALL and stocked by leading wholesalers everywhere for all standard oil burner storage tanks. Rochester Manufacturing Co., Inc., 66 Rockwood Street, Rochester 10, New York.

Rochester
MANUFACTURING COMPANY, INC.
DIAL THERMOMETERS GAUGES AMMETERS



we hear that . . .

ditioning markets," according to J. F. Knoff, vice president and general sales manager. No plans have been made to change the distribution of large central station type equipment.

Sterling Nicholson, president, Nicholson, Inc., recently was appointed the first wholesale distributor in the new distribution program. In 1935, the Nicholson company had been named the first of more than 600 franchised Airtemp dealers. Under the terms of the new agreement, the Southaire Co., a subsidiary corporation of Nicholson, Inc., will handle wholesale purchases, warehousing and retail distribution of heating and residential packaged air conditioning products in the Durham, N. C., area.

JOSEPH A. GRAZIER recently was elected as president of American Radiator & Standard Sanitary Corp., succeeding Theodore E. Mueller, who has been elected chairman of the board of directors. Mr. Grazier has been serving as president since June and before that was executive vice president. Mr. Mueller had served as president since 1946.



J. A. Grazier



R. W. Geisler

RUSSELL W. GEISLER is now president of Skuttle Mfg. Co. Formerly vice president and general manager, he succeeds Arthur L. Evans, who recently retired from the presidency. Mr. Geisler will retain his post as general manager. Milton A. Powers, vice president and director of engineering, has been named vice president and treasurer. Henry K. Bolton, office manager, is the new secretary.

SERVEL, INC., is readjusting its development divisions to meet the changing demands of the nation's mass market, according to H. R. Nielsen, sales manager of the air conditioning division. He says that the company has decided to concentrate even more of its effort on the small tonnage field because the greatest volume and profit opportunities "are growing there for distributors and dealers."

FURNACE AND APPLIANCE salesmen for Perfection Stove Co. are currently competing to better their own sales records for 1953. At stake are eight trips for two to Bermuda. To help in the competition, the company is offering its dealers free mailings of 250 to 1000 gravure folders to box holders on rural routes and to householders on city carrier routes.

Use quickdraft

THE DRAFT CREATOR
that makes all chimneys friendly

**ON MODERNIZATION AND
NEW CONSTRUCTION**

for **bigger profits...
warmer friends**

Now you can assure your customers against trouble with condensation on gas-fired heating plants—puffing, sooting and pulsating on oil burning equipment—smoking, puffing and clogging on coal furnaces—common difficulties caused by faulty or inadequate draft.

Short chimneys used in today's one-story and basementless homes do not provide sufficient draft to support full combustion and carry off all troublesome combustion products. Popular outside chimneys require longer to heat up and establish necessary draft. Long runs and elbows in smoke pipes and angles in chimneys cut down draft.

quickdraft overcomes these faults immediately and effectively. It creates full draft when firing begins and drives combustion products up the chimney. It operates through the firing period but does not "build up" excessive draft. **quickdraft** places no obstructions in the smoke pipe.

Simple, fool-proof, built for long service, **quickdraft** is reasonably priced . . . consumes no more current than a lamp bulb . . . and **quickdraft** is as easy to install as a length of smoke pipe which it replaces.

To make bigger profits and warmer friends, use **quickdraft** to prevent draft trouble on new construction, and to correct draft trouble on modernization work.

**IMMEDIATE DELIVERY
all standard sizes**

Write or
wire for
Installation
Manual
and details.

Patent
Pending



**quickdraft
COMPANY**

DIVISION OF THE HALL'S SAFE COMPANY, INC.

1640-D Cleveland Ave., NW, Canton 3, Ohio

**For highest
filtering efficiency
wise birds select AGITAIR
FM AIR FILTERS**



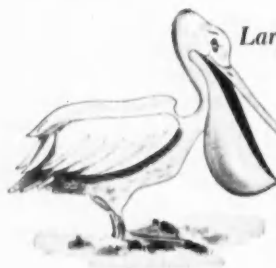
High velocity...utmost efficiency



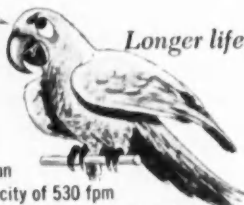
One-third less space required



*Lowest installation
and maintenance costs*

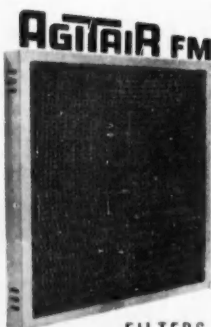


Larger capacity



Longer life

Designed for an approach velocity of 530 fpm over the net media area, the high filtering efficiency of the AGITAIR FM increases as the dust load is applied. You save $\frac{1}{3}$ in space required, in number of units to be installed and serviced. Very large dust-holding capacity of AGITAIR FM assures longer service periods, fewer cleanings per year, lower service charges. No exposed wire ends to cut or damage hands of service operators. Compare.



Send today for free
Cost Comparison Chart.

AIR DEVICES INC.
185 Madison Avenue, New York 16, N. Y.

FILTERS • AIR DIFFUSERS • EXHAUSTERS

we hear that . . .

UNIVERSAL METAL Fabricators, Inc., is moving into its new plant at 306 Stoker Drive, Saginaw, Mich. A fire last summer destroyed the entire production area of its former plant. The new area is almost double that lost by fire.

FOLLANSBEE STEEL CORP. has purchased an eight acre site in Wallingford, Conn., on which it will construct a warehouse comprising 54,000 sq ft, more than three times the size of the firm's present plant in Fairfield. Construction is expected to be completed by about June 1, 1954.

WM. STEINEN CO. has purchased additional manufacturing space in Newark along the Pennsylvania Railroad. The property, formerly owned by Quiet Heet Corp., adds 20,000 sq ft of factory space to the company's facilities.

THE FERDINAND DIECKMANN CO. now sends out monthly messages to manufacturers and jobbers of sheet metal contractors' supplies describing special features, production facts, innovations, etc., in the company's products.

A. D. VINING is now executive vice president and general manager of White Products Corp. He has been vice president and general manager.

AN INTENSIVE house to house selling campaign has produced excellent results for Dale and Maxey Co., heating dealer in Nashville for Temco, Inc. Sales of gas floor furnaces for the first nine months of this year amounted to more than 300.

FALL PROMOTION for the southern California area being planned by the Coleman Co. includes three radio shows featuring Eddie Cantor, Jimmie Stewart and William Gargan.

The company is using a private home in Fort Worth, Tex., as a laboratory for measuring the cost of operating air conditioning equipment under actual day-to-day living conditions. The house and its electronic recording devices were viewed by more than 10,000 people during a public showing held in connection with National Home Week. Gas, water and electricity for year 'round air conditioning will be recorded on separate meters.

WALTER A. GRANT has been elected a vice president of Carrier Corp. He will head the newly created central engineering staff. With the company since 1928, Mr. Grant has for the past five years been its director of research.

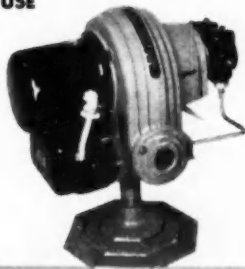
AMBROSE J. MEADE has been elected president of Morgan Brothers Co., metal fabricators. He has been with the company since 1938, and has been a vice president since 1952. He succeeds the late Frederick E. Geier.

Radiant

first choice for profit!

Radiant OIL BURNER FOR RESIDENTIAL, COMMERCIAL, INDUSTRIAL USE

A Complete Line . . . 34-30 gals. Shell Head Models 1/2-10 gals. Unsurpassed burner performance . . . competitively priced . . . factory guarantee . . . easy installation . . . minimum servicing . . . low upkeep . . . nationally distributed . . . protected territories.



Radiant OIL FIRED WINTER AIR CONDITIONER



Superior in design . . . Economical in price — installation — operation. Available in four models: Low Boy, Suspended Unit, Hi Boy, Counterflow. Factory assembled and shipped complete.

Radiant UTILITY PUMP

Discharges waste water from laundry tubs, washing machines and other fixtures or appliances located below sewer outlets. For draining water tanks and swimming pools, circulating water in cooling systems, agitating and pumping water in displays, and in photographic laboratories, etc. All bronze construction, dynamically balanced impeller, rotary type seal.



Radiant AUTOMATIC ELECTRIC SUMP PUMP



For all Drainage Problems—boiler, elevator and grease pits, cellar and basement sumps, water transfer for irrigation. Permanent, silent, trouble free operation. All bronze construction . . . dynamically balanced impeller . . . perfect alignment for minimum parts wear . . . 3200 gals. per hour.

Write for complete literature on all Radiant Products

RADIANT UTILITIES CORP.

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**No need to improvise
or compromise
when
you
specify**

AGTAIR

Only AGITAIR square and rectangular air diffusers are custom-made to suit conditions of each application. The patented, built-in diffusing vanes are scientifically arranged in various louver patterns which provide blows in 1, 2, 3 or 4 directions without use of blank-offs. This feature eliminates the necessity of "oversizing" to compensate for blank-offs or baffles.

When you specify AGITAIR square and rectangular diffusers you can be sure of 100% draftless air distribution from any ceiling or sidewall location. What's more, these smart, modern units are now available with or without removable, interchangeable cores. Whatever the space condition, there's an AGITAIR custom-made to give perfect performance and complete satisfaction.

New 34-page Type R Catalog reveals how correct air distribution is simplified by AGITAIR. Contact your local AGITAIR representative, or write us direct for your free copy.



AIR DEVICES INC.
185 Madison Avenue, New York 16, N. Y.

AIR DIFFUSERS • FILTERS • EXHAUSTERS

appointments . . .



Harold Hansen



H. L. Farrow

HAROLD HANSEN as field sales representative for the Williams Div., Eureka Williams Corp., covering northern Illinois and Indiana. For the past five years Mr. Hansen was a manufacturers' representative for the Certified Furnace Co., the Char-Gale Mfg. Co., and Maid-O'-Mist, Inc. Hollis L. Farrow has been appointed field service engineer for the division. He will have charge of service and installation of the company's equipment in Maine, Massachusetts, Connecticut, New Hampshire, and Rhode Island.

JOHN SAPE as district sales manager for Timken Silent Automatic Products in Indiana and Kentucky. He has

been chief laboratory engineer for National Tile and Mfg. Co. and more recently has been associated with the heating field in a sales capacity. William R. Seelbach has been named an area sales manager, to cover western New York, western Pennsylvania, western Virginia, and eastern Ohio. Mr. Seelbach has for the past 20 years operated his own business in Hamburg, N.Y.

WILLIAM FEW as chief engineer for Penn Controls, Inc. Formerly he was with the Clark Controller Co. where he managed the electronic and allied products division.



Wm. Few



J. S. McElwain

JOHN S. McELWAIN as manager of the room air conditioner sales division for Perfection Stove Co. He has been sales manager for the Cleveland Air Conditioning Corp. and for Avery Products Co. The South Texas

50 SECONDS

from COLD START to COMBUSTION
TEMPERATURE with..

HACKER

CABINET OIL BURNING FURNACE



- Heavy Steel Body Welded Cabinet
- Four Section Preheat Chamber
- Air Filter Expanded Fibre 20"x25"
- 1/4 H.P. Motor With Pulley
- 12" Wheel Blower
- Return Air Inlet 16 1/2"x16 1/8"
- Warm Air Outlet 16 1/2"x22"
- Gun Type Burner
- Stainless Steel Combustion Chamber
- Baked Metalasent Cabinet Finish

Exclusive Hacker stainless steel combustion chamber makes possible this *speedy temperature pickup*. No fire brick used. Faster combustion actually *lowers fuel bills*. Gives *more even temperature*. In addition chamber permits use of *any nozzle* from 1/4 to 1 gal. without changing size of chamber. ALL PARTS ARE STANDARD AND EASILY OBTAINED FROM ANY RELIABLE SUPPLY HOUSE. Hacker has an *amazingly low cost* obtained by specializing in *one furnace and one size*. Write for FREE engineering data.

---FREE DATA---

MAIL
COUPON
TODAY!

Standard Heating Equipment Company
Waterloo, Iowa
Gentlemen: Rush me complete money saving facts on the new Hacker oil-burning furnace.

NAME

ADDRESS

CITY

STATE

LOW PRICED TO MEET
TOUGHEST COMPETITION

FLANGES THE DUCT

IN LESS THAN
5 SECONDS

Works like a bar-
folder with a new
twist.

Handling the
work back and
forth has been
eliminated by a
unique manipula-
tion of the bender
itself.

"Best
little tool
in the shop"



No money tied up in idle equipment . . . And no time wasted in making adjustments . . . Fits any size ducts up to width of bender and any thickness up to 20 gauge mild steel.

No. 12 SMITH'S CLEAT BENDERS (12" Wide)\$46.20*

No. 18 SMITH'S CLEAT BENDERS (18" Wide)\$72.60*

*Prices subject to change without notice)

FOB Waukegan, Illinois

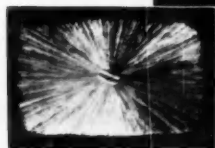
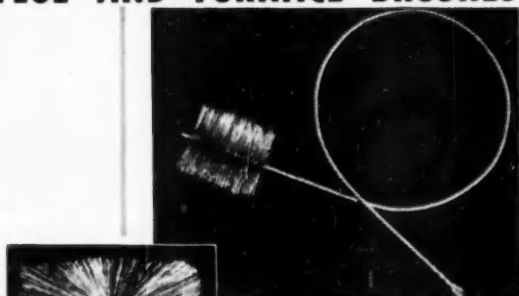
R. E. SMITH

P.O. BOX 78

1122-30 ELIZABETH

WAUKEGAN, ILLINOIS

SCHAEFER FLUE AND FURNACE BRUSHES



Today's Top Standard
In Quality And
Cleaning Efficiency

Rectangular Wire Brushes with Handles

Specially developed "Silver Brite" Rustproof Wire means longer wearing, better cleaning, with these Schaefer brushes. In three sizes with 4-foot wire handles. Also available in black oil tempered wire. Write for special prices and complete catalog No. 650 on Schaefer Boiler and Furnace Brushes.

LOOK for the trademark

SCHAEFER BRUSH MFG. CO.

117 W. WALKER STREET • MILWAUKEE 4, WIS.

SCHAEFER BRUSHES
—MILWAUKEE—

BUY SCHAEFER
...IT'S SAFER

our
ELBOWS
have all the
good points



CONDUCTOR
PIPE ELBOWS
AND SHOES

- All Sizes
- All Metals
- All Angles
- All Gauges

SEE YOUR
JOBBER



The CINCINNATI ELBOW CO.

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BARD MULTI RADIATOR WARM AIR HEATING

Mr. Dealer:

We want to send to you our catalog and price list.

You will then realize why Bard Dealers make more money with our complete line than with any other.

It's a known fact that Bard's Multi-Radiator construction gives top performance and fuel economy.

That's why sales are easier—with satisfied customers. Mail a card or letter today. You will profit more.

Bard Manufacturing Co.
BRYAN, OHIO



FLOTROL The Heart of the MONMOUTH HUMIDIFIER

Made of non-corroding bronze, stainless steel and plastic.



One outstanding feature of the Monmouth Humidifier that sets it apart from all others and makes it easy to sell is the time-tested Flotrol water feed control. It is designed to operate for years without the nuisance of service. You can specify it with every assurance that it will give your customers trouble-free service and build your good will.

Write today for literature, prices and discounts on Monmouth Humidifiers — made in capacities up to 420,000 S.T.U. and employing fast-diffusion Monite plates. They can add an extra profit on every warm air job — new construction or replacement.

Cleveland Humidifier Co.

7802 Wade Park Avenue,

Cleveland 3, Ohio

MONMOUTH HUMIDIFIERS

BEVERLY THROATLESS SHEARS



18 ga. metal
cut with
Model B-1
Shear.

MAKE CUTS LIKE THESE

QUICKLY...
EASILY... ACCURATELY

Save time, labor and material use a Beverly to make any cut... straight, curved or irregular in any metal.

Exclusive design allows work to be turned at any angle while cutting. Standard in the industry for years. 4 models — capacities to 1/2" mild.

See your Beverly Distributor for a demonstration. Write for FREE illustrated circular on Beverly metal cutting Shears.



MODEL
B-3
with ball
bearing
hold down.
Cap. 1/2"
mild; 10
gauge
stainless.

Beverly SHEAR MFG. CO.

3020 W. 111th STREET • CHICAGO 43, ILLINOIS

appointments . . .

Appliance Corp., 641 S. Flores St., San Antonio, has been named as the company's distributor in 64 Texas counties.

ALEX H. BANKO as national sales manager for Royal Jet, Inc., to head a new sales program. Formerly, he was sales manager for the Payne Furnace Div., Affiliated Gas Equipment Co.



A. H. Banko



J. S. Topp

JOSEPH S. TOPP as staff specialist in charge of residential air conditioning promotion for Airtemp Div., Chrysler Corp. He joined the division in 1947. E. D. Dickson has been named to head the Florida sales region. With the division since 1940, he has served most recently as manager of the parts and order department. Tay-Holbrook, Inc., 165 8th St., San Francisco, has been appointed as distributor in northern California and northern Nevada.



K. G. Patrick



J. S. Smith

KENNETH G. PATRICK as manager of educational relations services in the public relations services division, General Electric Co. He will be succeeded in his former post as manager of general public relations services by J. Stanford Smith, who has managed the apparatus advertising and sales promotion department since 1947. C. M. toeLaer has been appointed manager of commercial engineering of the company's home heating and cooling department, to be responsible for all application engineering and product services. T. N. Willcox succeeds him as application engineer for the department. Lawrence H. Hirschbach is manager of builder sales for the same department. Formerly he was vice president of Controlaire, Inc., a company distributor in Fort Lee, N.J. Robert P. Allison has been named manufacturing

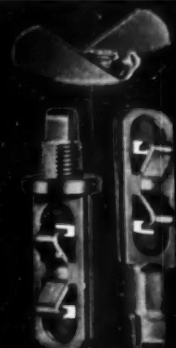


E-Z-ONS CLINCHING ACTION

*for Positive,
Quick and Easy
Installation*

- ★ E-Z-ONS two claw-like prongs clinch and grip from opposite directions to assure a tight fit.
- ★ One blow permanently rivets — not 3 or 4 operations.
- ★ E-Z-ONS will not swivel or loosen.
- ★ E-Z-ONS eliminate sheet metal screws, rivets or washers — none to use — none to lose.

Leading Jobbers Stock E-Z-ON.



STANDARD
E-Z-ON
DAMPER REGULATOR

M.A. GERETT CORP.

722 WEST WINNEBAGO STREET, MILWAUKEE 5, WISCONSIN

WEBCO

the portable

SHEET METAL BENDING BRAKE



The WEBCO brake offers the Slip End, Sliding Folding Fingers, and many other important features. The WEBCO will make bends up to 52°. Write for detailed information to:

HALLMOR INC.

McMURRAY ROAD
BRIDGEVILLE, PA.

watch for our 1954
model
announcements

field

DRAFT CONTROLS

- World's most widely used Barometric Draft Controls.
- The controls preferred by manufacturers, jobbers and dealers.
- Publishers of the first draft control guide for installing dealers.

FIELD CONTROL DIVISION
of H. D. CONKEY & COMPANY • Mendota, Illinois

AFFILIATES
CONCO BUILDING PRODUCTS, INC. • Brick, Tile, Stone
CONCO MATERIALS HANDLING DIVISION • Cranes, Hoists



Ask Your Jobber
for

DIECKMANN

**ELBOWS
and
SHOES**

*"An angle for every
obstacle"*

Made in 28, 26 and 24 gauge steel, hot dipped galvanized after formation. Also in Copper, Aluminum and Stainless Steel.

Sizes 1" to 6"—Angles
10 to 90 degrees.
Always uniform in size
and angle

One piece tapered with no protruding seams—a perfect and tight fit with any conductor pipe without soldering.

**THE FERDINAND
DIECKMANN CO.**

Established 1871
P.O. STATION 8,
CINCINNATI 22, OHIO



Plain Round



Round Corrugated



Square Corrugated
Style "A"



Square Corrugated
Style "B"

H&C Kwik-way DAMPER REGULATOR SETS

ONE SOLID HAMMER BLOW SETS THE BEARING

PERMANENTLY SECURE, RATTLE-PROOF!

No anvil required. Both bearings have retractable bolts for easier installation. Their convenience and time saving characteristics makes them by far the most economical sets when installed costs are considered. See your jobber or write for literature.



HART & COOLEY MANUFACTURING CO.
 806 EIGHTH STREET HOLLAND, MICH.
 IN CANADA: HART & COOLEY MFG. CO. FORT ERIE, W., ONTARIO

CHICAGO Steel BENDING BRAKES

One-man operation



CHICAGO hand-operated bending brakes are available in a variety of standard sizes ranging from 3 to 12 feet in capacities up to 12-gauge sheet metal.

also

CHICAGO Portable Hand Brakes
CHICAGO Box and Pan Brakes
 Full Particulars upon Request

DREIS & KRUMP CHICAGO
 MANUFACTURING COMPANY
 7404 S. Loomis Blvd., Chicago 36, Illinois

appointments . . .

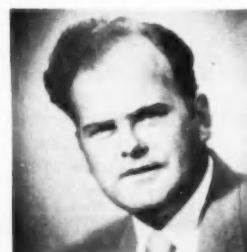
consultant to the Weathertron department. In this post he will co-ordinate manufacturing facilities with product development.

EUGENE J. WELSH as assistant editor of the house organ, Sales News, and member of the advertising and sales promotion department of York Corp. Formerly he was public relations and safety director with the White Rose AAA Motor Club.

THOMAS E. GRAVENSTRETER as manager of air dryer sales for Bryant Heater Div., Affiliated Gas Equipment, Inc. Reorganization of air dryer operations was prompted by a 90 per cent sales increase in the past year.



T. E. Gravenstreter



H. F. Telthorst

HOWARD F. TELTHORST as sales representative for Inland Steel Products Co. in western Illinois and eastern Missouri. He works out of the company's St. Louis branch office. Jay E. Muilenburg has been appointed assistant manager of the Kansas City branch. Formerly, he was in charge of special finance assignments for the company's main office in Milwaukee.

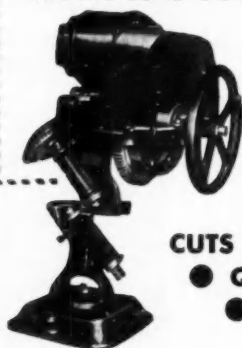
ARNE LOVENDAHL as manager of the Philadelphia area office for Combustion Control Corp. He has been a sales engineer for the company in the Chicago area.

JOHN P. MOFFITT as regional sales manager for the Air Conditioning Div., Remington Corp., to have overall responsibility for New York; New Jersey and New England, and to head the company's New York City office. W. H. Dennison is now West Coast regional manager, with offices in Palo Alto. Louis F. White, formerly with Avco Mfg. Corp., replaces Mr. Moffitt as New England district sales manager. Fred A. Weber, formerly a sales manager for E. B. Latham Co., will be district sales manager covering the metropolitan New York trading area and New Jersey. John C. Crites is now service representative for the southeastern United States, supervising servicing in Florida, Georgia, North and South Carolina and Virginia.

Ronald H. Pepin, Detroit, is sales representative for the company, covering Michigan, Ohio and western Pennsylvania. His headquarters are at 900 Whitmore

THE RIGHT SHEARS FOR ANY CUTTING JOB

MARSHALLTOWN



ROTARY THROATLESS SHEARS

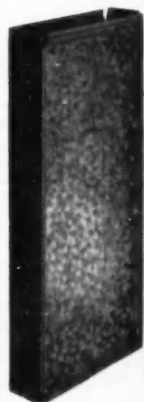
CUTS ALL SHAPES—SIZES

- QUICKER
- EASIER
- FASTER

Here's a shears that's right for every job. Speedy — efficient. Cuts up to 1/4 inch stock — speed to 6 ft. per minute. Excellent for irregular cutting or straight splitting. Available in hand operated or motorized models. Prompt shipment. Send today for special illustrated bulletin.

MARSHALLTOWN MFG. CO.
Marshalltown, Iowa

ALL YOUR NEEDS In DUCTS and FITTINGS



AJAX

- Highest Quality
- Precision Made
- Quick Assembly
- Forced Air or Gravity
- All Systems

Fittings, Pipe and Duct are die cut and formed, fit up tight and fast with AJAX Automatic Snap Lock connections.

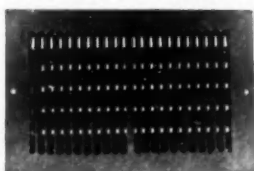
**AJAX
FURNACE
FITTING CO.**

216-20 E. Front St.
Cincinnati 2, Ohio

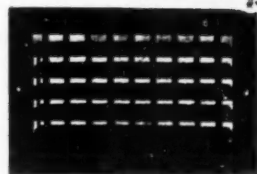
For extra profits, use AJAX Pipe and Fittings to save you installation time and labor.

WRITE TODAY
New complete line catalog complete with helpful data.
DIVISION OF
THE CINCINNATI SHEET METAL
& ROOFING COMPANY

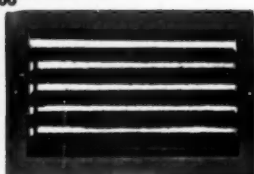
See Your Jobber



#300



#200



#100

Many thousands of the above types used in housing projects. Lowest in price, more free area.

The Air-O-Vane ceiling diffuser. Also made in type D-R with positive shut-off control (Patents Pending) made in all sizes.



Greatest in free area of any ceiling diffuser and lowest in cost. Write for catalogue or see your jobber.

AIR-O-VANE CEILING DIFFUSER
WRITE FOR CATALOGUE TO —



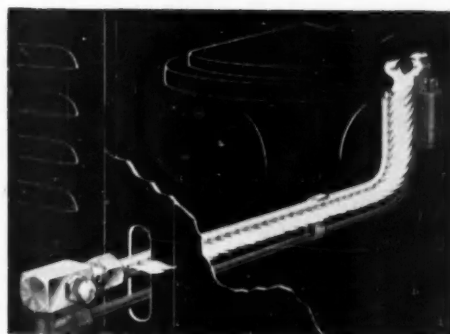
KRUEGER

AIR CONDITIONING COMPANY

19 EAST RILLITO ST. TUCSON, ARIZONA

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With the Slanting Blue Flame



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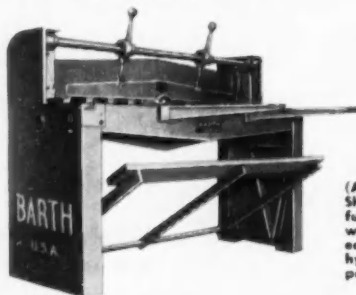
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appointments . . .

Rd. E. G. Sommerlath, Jr., 2741 Olive St., St. Louis, will represent the company in Kansas, Missouri and southern Illinois. S. M. Davison Co., 1509 Oak St., Evanston, Ill., will cover Chicago, northern Illinois, Wisconsin and Indiana.

SAL GALLO as a member of the New England sales staff for Acme Heating Div., The United Tool & Die Co. He will be a sales representative handling warm air furnaces in Connecticut and western Massachusetts.



Sal Gallo



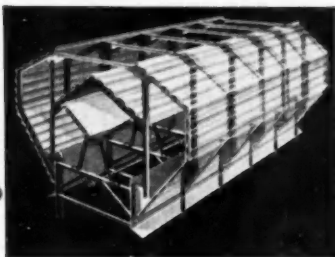
Robert Soroka

ROBERT SOROKA as direct factory representative for Roberts-Gordon Appliance Corp. in the eastern part of Pennsylvania, Maryland and Delaware. For the past five years he has been a sales engineer for Minneapolis-Honeywell Regulator Co. The Soroka Equipment Co., of which he is president, is located at 51 Silver Birch Drive, Levittown, Pa.

REFRIGERATING AND POWER Specialties Co., 380 Brannan St., San Francisco, as sales representative for Kennard Corp. The company also has a Stockton, Calif., office which will cover the San Francisco area, consisting of northern California and western Nevada. Neill Equipment Co., 511 Keeline Bldg., Omaha, is a representative for Nebraska, which formerly was handled from the Kennard sales office in Kansas City.

INDUSTRIES SUPPLY Co., 4th Ave. and J St., San Diego, Calif.; McPherson Furnace & Supply Co., 1805 N. E. 2nd Ave., Portland, Ore.; and Reilly Atkinson & Co., 705 S. 8th St., Boise, as distributors of fiber glass insulation for Libbey-Owens-Ford Glass Co.

HAROLD WINNINGHAM & Co., Seattle, as western states regional representatives for Gasinator Mfg. Co., handling gas fired automatic disposal units. Headquarters will be in the Medical Arts Bldg. Bramley Distributing Corp., 1423 S. 23rd St., Phoenix, will represent the company in Arizona and New Mexico. Gasinator Intermountain, Inc., will cover Utah, Colorado, southern Wyoming and eastern Nevada. Other recently named distributors include: The Ben Rubin Distributing Co., 1034 Grand Ave., Toledo; The Ohio Appliances, Inc., 241 N. 4th St.,



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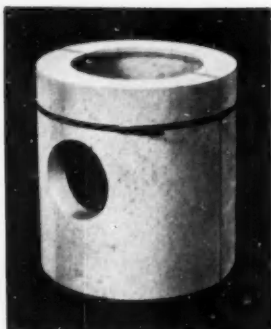
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appointments . . .

Columbus; The Ohio Appliances, Inc., 430 Leo St., Dayton; Raymond Rosen & Co., 32nd St. and Walnut, Philadelphia; The Sampson Co., 2244 S. Western Ave., Chicago; Hamburg Bros., 360 E. Federal St., Youngstown; Peninsular Distributing Co., 3116 E. Jefferson Ave., Detroit; and Wolverine Distributing Co., 920 Monroe Ave., N. W., Grand Rapids.

JOHN G. HAMM as manager of the St. Louis sales office of the Trane Co. For the past seven years he was associated with the company's St. Paul sales office.

THE ARMSTRONG HEATING SUPPLY CO., 4500 W. Fillmore St., Chicago, as distributor for Century Engineering Corp., handling gas and oil automatic heating equipment in the Chicago and northern Illinois area. Scott Wood & Metal, Inc., located on U.S. Route 30 east of Aurora, Ill., will handle the distribution of Century heating equipment in the Fox River Valley area.

B. P. MOORE as head of building products sales activities in New York, Pennsylvania, New Jersey, Delaware, Maryland, northern Virginia, West Virginia, and all New England states for Reynolds Metals Co. He has been transferred to the New York City office from the Building Products Div. headquarters in Louisville.



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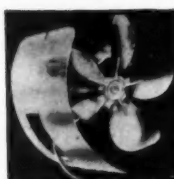
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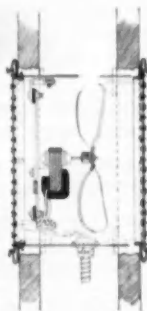
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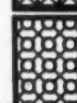
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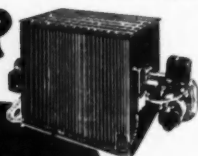
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Obituaries

Charles H. Williams

CHARLES U. WILLIAMS, founder of the Williams Oil-O-Matic Heating Corp., died on October 30 at his home in Bloomington, Ill. He was 86.

Mr. Williams was the organizer and first president of the Williams Oil-O-Matic Heating Corp., which became the Eureka Williams Corp. after merging in 1945 with the Eureka Vacuum Cleaner Co. of Detroit. He served as president until 1939.

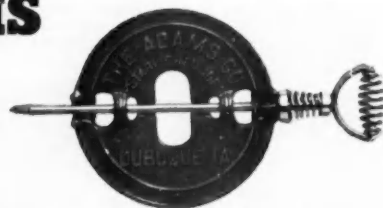
Under Mr. Williams' guidance the firm developed and built the first fully automatic low pressure atomizing type fuel oil burner.

Robert Warren

ROBERT WARREN of the Warren Co., Erie, Pa., died Sunday, November 15. Mr. Warren had been active for many years in association work, having been a member of the Sheet Metal & Roofing Contractors' Association of Erie, a director of the Sheet Metal, Air Conditioning and Roofing Contractors' Association of Pennsylvania, and a member of the Sheet Metal Contractors National Association.

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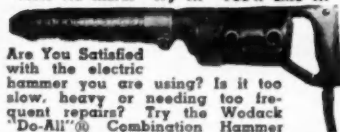
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WANTED: Due to expansion of our manufacturing facilities, we have several excellent openings for sales representatives and district sales managers. Salary plus expense allowance, plus commission incentive. Write and give details about yourself to W. S. Moellering, Sales Manager, Heating Division, Century Engineering Corporation, Cedar Rapids, Iowa.

SALESMAN WANTED — Mid-Western manufacturer with products going to the plumbing, heating and air-conditioning trade has opening for a full time salesman to do missionary and sales work. Give resume of qualifications. All replies held confidential. Write Key 955, American Artisan, 6 North Michigan Avenue, Chicago 2, Illinois.

RESIDENTIAL COOLING SALES ENGINEER — Prominent manufacturer of warm-air heating equipment needs experienced man to sell newly added line of summer air conditioners. Must have good background in air conditioning sales and engineering. An excellent opportunity for the right man. Send details of education, experience. Include photo. Address Key 951, American Artisan, 6 North Michigan Avenue, Chicago 2, Illinois.

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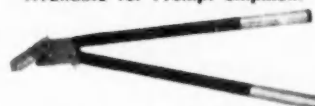
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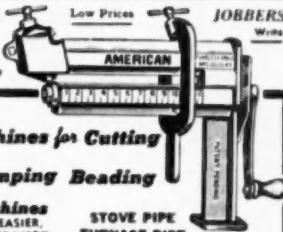
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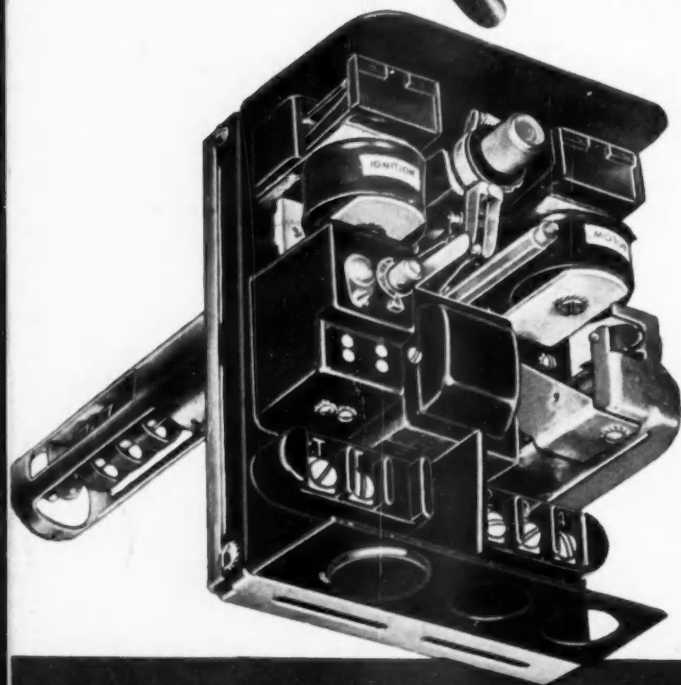


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